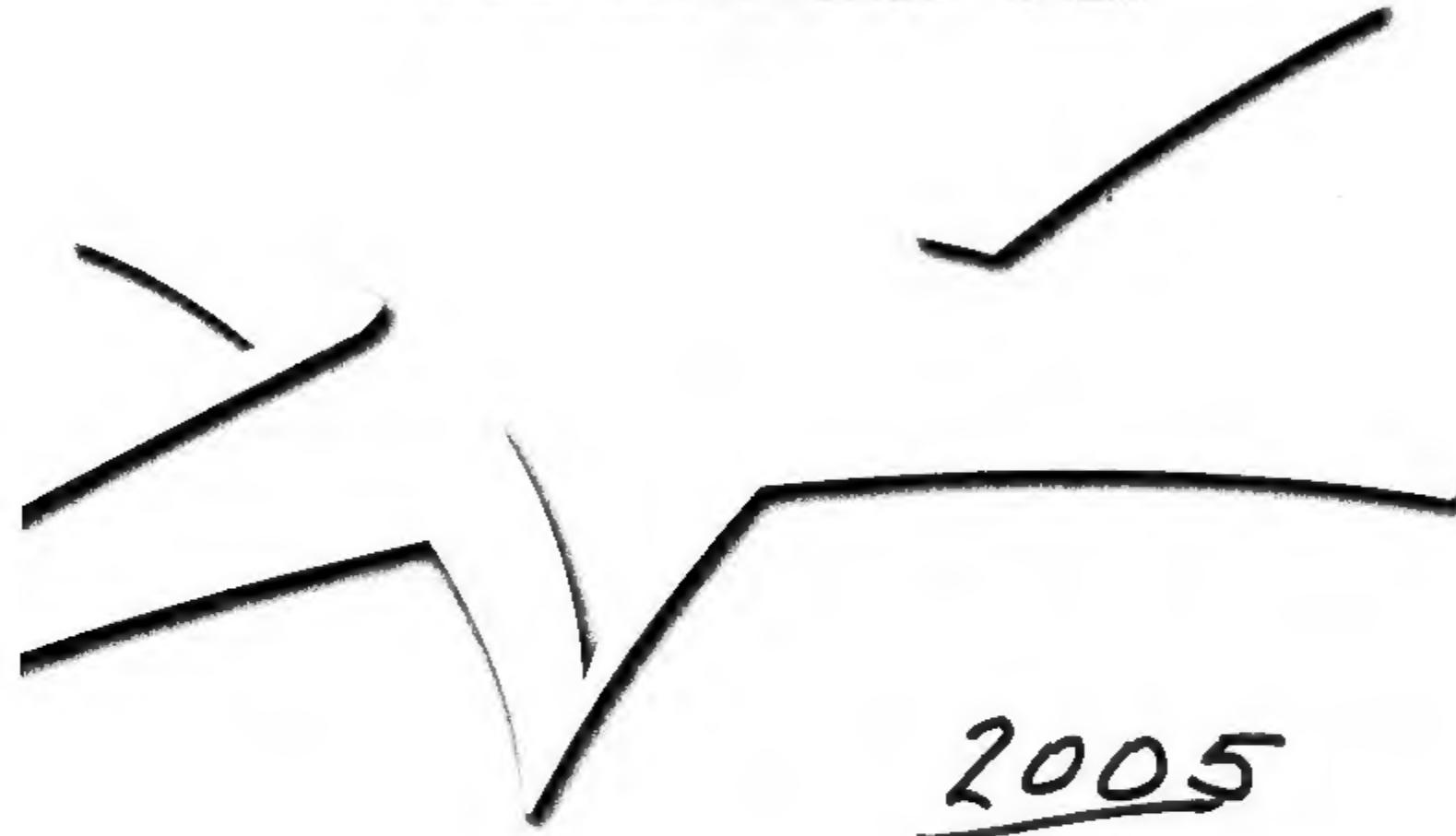


OWNER'S MANUAL



2005

Folding Camping Trailers

STARCRAFT®

To our customers: for your safety and that of others, it is necessary that you read and understand this entire manual prior to your first camping excursion.



**As the owner of this Starcraft brand product
you are eligible for active membership in the
Starcraft Camper Club**

For details write:

Director, Starcraft Camper Club • P.O. Box 176 • Osceola, IN 46561-0176

The Starcraft Camper Club consists of the Starcraft RV owners from coast to coast who enjoy organized recreational vehicle activity. As a member, you can attend several of the camping events organized each year by your state chapter and international office. Each July, you can spend a week at the Starcraft International Camper Club Rally -- an event that attracts hundreds of Starcraft families from all over North America. If that's not enough to convince you, here are more reasons why you should join:

- Friendship Rallies**
- Regional Rallies**
- Yearly International Rally**
- New Membership Kit & Membership Plaque**
- Chatter Newspaper**
- Discounts on Atlas, Campground Guides and Magazines**
- Club Camping with other Starcraft Members**

STARCRAFT®

Dear Starcraft Consumer:

Congratulations on your purchase of a Starcraft RV. On behalf of Starcraft RV, Inc., we, the Starcraft employees, offer you our warmest welcome!

We greatly value the confidence you placed in Starcraft by your recent purchasing decision. We are equally confident you will have many years of pleasant RV experiences in your new Starcraft because of our continuing dedication of providing you with the most complete brand of consumer satisfaction in the RV Industry today: **STARCRAFT**.

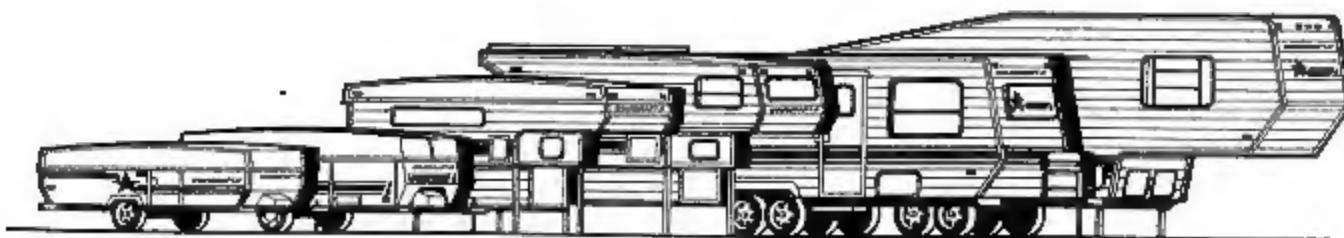
To help assure your continued satisfaction and enjoyment of your Starcraft we request you take the time right now to study and understand all of the information and pamphlets supplied with your Starcraft. The Owner's Manual is an invaluable resource containing important recommendations on proper usage, maintenance and servicing of your Starcraft. A few minutes spent learning the functions of the systems on your Starcraft plus the installation and operation of any appliances supplied with your Starcraft can reduce or eliminate future problems. Failure to properly maintain your RV will result in denial of warranty.

It is very important to validate all accompanying service warranties. Please take a minute now to complete the registration cards and mail the cards to the respective manufacturers, today.

If you should require service, an authorized Starcraft RV Dealer can properly service your Starcraft, as well as answer other questions you may have.

Thank you for purchasing a Starcraft. We hope you are – and will continue to be – satisfied with your RV and will feel free to recommend a Starcraft to other members of your family, your friends and neighbors as well.

Most Cordially,
Starcraft Family of Employees



Starcraft RV, Inc., • P. O. Box 458 • Topeka IN 46571 • www.starcraftrv.com

Table of Contents

STARCRAFT FOLDING CAMPING TRAILER WARRANTY	3	Battery Installation	19
SPECIAL SAFETY PROCEDURES	6	WATER SYSTEMS	19
INTRODUCTION	7	Water Fills	19
Dealer's Responsibility	7	Sink Drain	20
Owner's Responsibility	7	Demand Pump	20
Insurance Coverage	7	Water Heater	20
Dealer Review	7	12 Volt Cassette Toilet	20
PRE-PLANNING / PRE-DELIVERY	8	Shower	20
Hitch Requirements	8	Sanitizing the Water Storage Tank	20
Wire Harness/Pigtail Installation	8	Draining the Water System and Heater	20
Break-Away Switch	8	Winterizing the Water system	21
Dolly Wheel Jack	8	ELECTRICAL SYSTEM	21
Coupler	8	110 Volt AC	21
Safety Chain Installation	9	Circuit Overload	21
Safety Chain Usage	9	12 Volt DC	21
Mirrors	9	Electric Brakes	22
Liquid Petroleum (LP) Set-Up	9	LP GAS SYSTEM	22
PRE-TRAVEL CHECK	10	Single LP Bottle	23
TRIP PREPARATION	10	Double LP Bottles	23
Sanitize Water System	10	Auto Switch Over Valve	24
Frame & Running Gear	10	Filling LP Gas Bottles	24
Spare Bulbs	10	LP Bottle Maintenance	24
TRAILERING	11	LP Gas Line Check	24
Driving	11	Regulator	24
Braking & Emergency Stops	11	Freeze-Up	24
Runaway Camper	11	LIFTER SYSTEM	24
Swaying	11	TAKE-DOWN (NON SLIDEOUT MODELS)	25
Grades	11	Interior	25
Backing	11	Exterior	25
Tire Change	11	TAKE-DOWN (SLIDEOUT MODELS)	25
Tires	12	Interior	25
Wheel Lug Nuts	12	Exterior	25
Federal Information Sticker	12	MISCELLANEOUS	26
Load Limits and Weight Distribution	12	Appliances & Accessories	26
Use of TABLE 1	12	Furnace	26
Net Carrying Capacity	12	Water Heater	26
Hitch Weight	12	Refrigerator	26
Axle Weight (AW)	12	Air Conditioner	26
Total Vehicle Weight (VW)	12	FIRE SAFETY	27
Weight Distribution & Rating Definitions:	12	Fire Extinguisher Locations	27
Hitch-to-Weight Ratio	13	Emergency Exits	27
TABLE 1: LOAD CALCULATIONS	13	COLD WEATHER USE	27
EXTERIOR SET-UP (NON SLIDEOUT MODELS)	14	STORAGE	27
EXTERIOR SETUP (SLIDEOUT MODELS)	16	CONDENSATION	28
INTERIOR SET-UP	16	Effects of Long Term/Cool Weather Occupancy	28
Sink Cabinets	16	Controlling Condensation	28
Tables	16	WARRANTY REPAIRS	28
Beds	16	SERVICE & SERVICE CHART	29
Carry-Out Range	16	STANDARD CARE	30
Drape Retainer Cord Installation	17	RT SERIES	31
ACCESSORY INSTALLATION AND SET-UP	17	TENT FABRIC CARE AND MAINTENANCE	32
Step Operation	17	SERIAL NUMBER IDENTIFICATION FORM	33
Installing the Awning & Screen Room	17	OPTION WEIGHTS	33
Bunk End Hide-Away Installation Instructions	17	12 VOLT SCHEMATIC	34
Spare Tire Installation	18	CHASSIS SCHEMATIC	35
Clothes Hanger Installation	18	CENTENNIAL ENTRANCE DOOR SET-UP	36
Bunk Light Installation	18	CENTENNIAL SINK FAUCET STORAGE	36

Warranty – Starcraft RV, Inc.

LIMITED 1-YEAR WARRANTY FOLD-DOWN CAMPING TRAILERS LIMITED LIFETIME WARRANTY ON LIFTER, ROOF AND FLOOR (LIMITED 30-DAY WARRANTY FOR COMMERCIAL USERS)

Starcraft RV, Inc., ("Starcraft") warrants each new fold-down camping trailer (the "Product") it manufactures to be free from defects in material and workmanship under normal non-commercial use and service, for twelve (12) consecutive months from the date of first retail purchase – with the exception of the extended warranty on the internal lifter system, the roof, the floor and the tent on all models – subject to the terms and conditions listed below. This warranty is not transferable.

1. WARRANTOR. This warranty is granted by Starcraft RV, Inc., P.O. Box 458, Topeka, IN 46571.

2. PARTIES TO WHOM WARRANTY IS EXTENDED. This warranty shall be extended only to the original owner of the Product (other than for resale use or in the ordinary course of the buyer's business) provided that the product is normally used for personal, family or household purposes. This warranty is not transferable to any other party. For Starcraft Products used commercially, this warranty is valid for thirty (30) days after the date of original purchase from an authorized Starcraft dealer. Such 30-day warranty also applies to, but is not limited to, units placed in rental or demonstrator service by dealer or other parties.

3. OWNER OBLIGATIONS. The owner is responsible to inspect the Product prior to signing the "Inspection and Acceptance Declaration" section of the "Owner Protection Warranty Registration". Floor covering is warranted against gouges, cuts and tears only if noted prior to retail delivery. Any nonfunctional or cosmetic problems must be reported prior to retail delivery to be covered by this warranty. The owner is responsible for normal maintenance as described in the Owner's Manual and separately warranted components operation manuals.

The owner is responsible for normal maintenance as described in the Owner's Manual; However, minor adjustments (such as adjustments to the interior or exterior doors, LP regulator, pressure cabinet latches, etc., will be performed by the dealer during the first 90 days of warranty coverage. Thereafter, such adjustments are the responsibility of the owner as normal maintenance unless required as a direct result of repair or replacement of a defective part under this warranty.

4. DEALER OBLIGATIONS. By agreement with the manufacturer, the dealer is obligated to maintain the Product prior to retail sale, to perform a detailed pre-delivery inspection with the customer and to repair or replace any parts necessary to correct defects in material or workmanship prior to delivery.

It is the dealer's responsibility to submit the Owner Protection Warranty Registration to Starcraft for the customer and provide a copy of this registration to the customer.

5. SUMMARY OF WARRANTY

a. LIFTER SYSTEM: The lifter system on the product is warranted by Starcraft to the original retail owner for a limited product lifetime of his or her ownership to be free from functional defects in material and workmanship. This warranty will provide both parts and labor required to correct any defects in material or workmanship.

The total weight, in addition to the standard roof and canvas configuration, that can be added to the lifter system is not to exceed 175 LBS for the 3-stage lifter system. These figures are the total combined weight of items such as the air conditioner, A/C prep package, awning, bike rack, boat rack, etc. Any combined weight above these figures will void the lifter warranty.

EXCLUSIONS TO LIFTER SYSTEM WARRANTY: Any damage caused by improper installation, maintenance, or repair; alterations to the lifter system, or use of other than Starcraft recommended parts. Normal adjustments to the lift system are covered for the first 12 months only. Normal use, wear and tear and excessive exposure to the elements are not covered.

b. FLOOR: The floor on the product is warranted by Starcraft to the original owner for a limited product lifetime of his or her ownership to be free from functional defects in material and workmanship. Parts and labor are both covered.

EXCLUSIONS TO FLOOR WARRANTY: Gouges and cuts in linoleum not noted at time of delivery, normal wear and tear, or damages caused by standing water.

c. TENT ASSEMBLY: The tent assembly is warranted for 7 years from the date of purchase against functional defects in material and workmanship. Sewing defects, zipper problems and leaks will be covered for the first year only, including parts, labor and shipping. Problems such as these will be repaired by sending the tent section back to the Starcraft production plant.

EXCLUSIONS TO TENT ASSEMBLY WARRANTY: Rips, tears (unless noted at time of delivery), shrinkage, fading, mildew, soiling and/or discoloration, and dry rotting will not be covered by this warranty.

d. ROOF: The roof is warranted to the original owner only for a limited product lifetime of his or her ownership to be free from functional defects in material and workmanship. Parts will be covered forever but labor and shipping for the first two years only.

EXCLUSIONS TO THE ROOF WARRANTY: This warranty provision for the roof does not include routine maintenance, surface finish, resealing, or damage due to the installation of nonstandard equipment.

NOTE: Snow loads must be removed from the roof to avoid damage.

REMINDER: Warranties for the lifter system, floor, roof and tent assembly are not transferable and are limited to functional defects.

6. PARTS COVERED. Only the following parts are covered under this warranty:

- (a) Frame, body, roof, lifter system, and cabinetry manufactured by Starcraft.
- (b) Installation work performed by Starcraft on components not manufactured by Starcraft.
- (c) Cushion covers, upholstery, privacy curtains, and drapes are warranted against defects in materials of workmanship and will be repaired or replaced at Starcraft's sole discretion under this warranty if returned by an authorized Starcraft dealer to the Starcraft production plant.
- (d) Floor covering is warranted against gouges, cuts, and tears only if noted prior to retail delivery.

7. LIMITATIONS AND EXCLUSIONS. Items not covered by this warranty include, but are not limited to:

- (a) Tires, wheels, furnaces, converters, refrigerators, air conditioners, and water heaters, brakes and running gear, toilets, water pumps, and all other appliances which are directly warranted by their respective manufacturers. Starcraft warrants installation only for these items.
- (b) External paint and surface finishes on the roof, frame and body of the camper are not warranted beyond the retail delivery date. Any imperfections should be noted by the buyer and corrected by the selling dealer prior to delivery.
- (c) Canvas, fabric, and cushions are not warranted against shrinkage, fading, discoloration, soiling, dry rotting, or mildew.
- (d) Any nonfunctional or cosmetic problems that are not noted prior to retail delivery. Minor imperfections which do not affect the suitability of the vehicle for its intended use.
- (e) Normal wear and tear, abuse, neglect and damage from the use of improper cleaning agents to any part of the camper. Normal and routine maintenance such as inspections, lubricating, adjustments, tightening of screws, tightening of lug nuts, sealing, cleaning, or damages arising from the failure to have maintenance performed as outlined in the owner's manual and/or the component manuals.
- (f) Damage incurred by lightning, hail, floods, condensation, wind, and exposure to corrosive atmosphere and unreasonable use, accidents, and alterations. This would also include damages occurring as a result of operating the RV over unimproved roads. Wheel alignment or adjustments to axles when caused by improper maintenance, loading or damage from road hazards, including off-road travel, wheel damage or balancing or damage resulting from tire failures.
- (g) Extra expenses such as transportation to and from dealer or manufacturing plant location, loss of time, loss of pay, loss of use of the camper, inconvenience, commercial loss, towing charges, bus fares, vehicle rental, incidental charges such as telephone calls or lodging bills, service calls or any other incidental or consequential damages or other incidental or consequential damages (other than injury to the person.)
- (h) Since Starcraft has no control over where, when or how a unit is used or stored, any problems or damages occurring as a result of these conditions will not be covered by this warranty. This also includes damages done by rodents, insects, etc.

NOTE: Recreational vehicles are built for temporary living and not for permanent dwelling places. To use a recreational vehicle as full-time living quarters, you must understand adverse conditions may develop. Service calls for warranty work are not covered on permanent setups.

8. REMEDY. Call the authorized Starcraft Dealer from whom you purchased your Product or the nearest authorized Starcraft Dealer. Report your problem and arrange for an appointment. Take the Product at the scheduled time to the dealer with your copy of the Owner Protection Warranty Registration. Only authorized Starcraft Dealers may perform warranty obligations. If a Starcraft Authorized Dealer is not available in your area, write to Starcraft RV Warranty Department to arrange prompt and proper service to your Product.

The date of retail sale is established by the signed Owner Protection Warranty Registration. If during the unexpired duration of the original warranty, any parts or installation work covered by this warranty proves to be defective in material or workmanship, Starcraft at its option, shall repair or replace the defective parts. Parts and labor shall be at Starcraft's expense but not transportation costs. This Starcraft warranty is void unless your Owner Protection Warranty Registration form is returned to Starcraft.

9. PROCEDURE FOR OBTAINING PERFORMANCE UNDER THIS WARRANTY. In order to obtain performance under this warranty, the owner must promptly (in no event later than thirty (30) days after discovery of the defect) give notice of the defect to an authorized Starcraft Dealer. If repair or replacement by an authorized Starcraft Dealer is determined by Starcraft to be impractical, the owner shall write or call the Starcraft Warranty Services for instructions to return the defective part or product.

10. DESIGN CHANGES. Starcraft reserves the right to make changes in the design or material of its Product without incurring any obligation to incorporate such changes in any Product previously manufactured or advertised.

11. ENTIRE WARRANTY. This warranty may be altered only in writing signed by an officer of Starcraft. It may not be altered or extended orally, or in writing by any dealer or other person.

12. SEVERITY. Whenever possible each provision of this warranty shall be interpreted, so as to be effective and valid under applicable law. If any provision of this warranty shall be prohibited by or determined invalid under any applicable law, such provision shall be ineffective only to the extent of such prohibition or invalidity, without invalidating the remainder of such provision or provisions contained in this warranty.

13. EXCLUSIONS AND IMPLIED WARRANTIES. This warranty applies only to products sold at retail by an authorized Starcraft dealer in the United States or Canada.

The customer is advised to observe the recommended gross weight limits affixed to the Product and instructions for load distribution covered in the owners manual. The Product is not a cargo trailer. Commercial use or rentals of your Product, misuse, and abuse, neglect or operation over unimproved roads will void this warranty. This warranty does not cover damage incurred by lighting, wind, hail, floods and exposure to corrosive atmosphere and unreasonable use, accidents, and alterations.

This warranty does not cover damages caused by failure to perform normal routine maintenance as instructed in the individual Starcraft Owner's Manual or individual manufacturer's operation instructions provided with your Product.

Starcraft shall not be responsible or liable for indirect or consequential damages of any kind. However, arising, including, but not limited to, loss of use of any products, loss of time, inconvenience, or incidental or consequential damages with respect to persons, business or property. Whether as a result of breach of warranty, negligence or otherwise, Starcraft's liability shall be limited solely to the sales price, or at Starcraft's option, repair or replacement of the goods or component parts not meeting the quality and specifications warranted.

No other warranty, expressed or implied, shall apply, including any implied warranty of merchantability, or of fitness for a particular purpose, and any such implied warranties are expressly disclaimed. In the event that applicable law prevents the disclaimer of any implied warranties, then such implied warranties shall be limited to the duration of this expressed warranty.

Note: Some states do not allow (a) limitations on how long an implied warranty lasts, or (b) the exclusions or limitations of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Starcraft.

If NHTSA receives similar complaints, it may open an investigation and, if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or Starcraft.

To contact NHTSA, you may either call the Auto Safety Hotline toll-free at 1-800-424-0393 (or 366-0123 in Washington, D.C. area) or write to: NHTSA, U.S.A. Department of Transportation, Washington, D.C. 20590. You can also obtain other information about motor vehicle safety from the Hotline.

Special Safety Procedures

In order to make your camping experience a safe one, it is important that **EVERYONE** who is going to use your camper be familiar with the operating instructions contained in this manual. The following are some safety points which are discussed more fully later in this manual, but we want to **EMPHASIZE THAT YOU READ THEM HERE AS WELL:**

- 1. Learn to drive with your unit.** Driving with a trailer is not the same as driving your car. You must take time and get the instruction (if necessary) to learn the different driving characteristics and maneuvering procedures (see **TOWING EQUIPMENT** and **DRIVING RULES** sections in this manual).
- 2. Know how to respond to a gas leak.** An LP gas leak could cause an explosion.

DANGER

IF YOU SMELL GAS

1. Extinguish any open flames, pilot lights and all smoking materials.
2. Do not touch electrical switches.
3. Shut off the gas supply at the container valve(s) or gas supply connection.
4. Open doors and other ventilating openings.
5. Leave the area until odor clears.
6. Have the gas system checked and leakage source corrected before using again.

FAILURE TO COMPLY COULD RESULT IN EXPLOSION RESULTING IN DEATH OR SERIOUS INJURY. 00-00

3. DO NOT use LP gas while travelling. The main LP gas service valve must be shut off while traveling because of the danger of a fire or explosion if an LP gas line under pressure were ruptured in an accident. In addition to being unsafe, it is **ILLEGAL** in some states to operate a gas appliance while the vehicle is in motion.

4. Refilling the LP bottle. Never smoke or light an open flame either inside your unit or near it while the LP bottle is being refilled. Use an approved leak detector kit or soapy water solution when checking for leaks; never use an open flame. To avoid an explosion when you reinstall your bottle, make sure that all valves are off and pilot lights out **BEFORE YOU OPEN THE SERVICE VALVE ON THE REFILLED BOTTLE.**

5. Cooking. Great caution should be exercised when cooking inside your camper. Cooking devices emit exhaust fumes which contain deadly carbon monoxide. Combustion also consumes oxygen which is necessary for breathing to sustain life; therefore, steps must be taken to disburse carbon monoxide and supply combustion air in order to avoid asphyxiation. Open the roof vent and a window to provide adequate ventilation when cooking. Portable cooking devices, including grills and stoves, which burn wood or charcoal should never be used inside your camper, as they may cause fire or asphyxiation.

WARNING

IT IS NOT SAFE TO USE COOKING APPLIANCES FOR COMFORT HEATING.

Cooking appliances need fresh air for safe operation.

Before operation:

1. Open overhead vent or turn on exhaust fan.
2. Open window.

FAILURE TO COMPLY COULD RESULT IN DEATH OR SERIOUS INJURY.

DD-280

WARNING: LP gas containers shall not be placed or stored inside the vehicle. LP gas containers are equipped with safety devices that relieve excessive pressure by discharging gas to the atmosphere.

WARNING: IT IS NOT SAFE TO USE COOKING APPLIANCES FOR COMFORT HEATING.

6. Water. When a disinfectant or antifreeze solution has been put into the unit's water system, do not use the system until it has been thoroughly flushed with water. Starcraft recommends that you fill the water system with water 4 - 8 times to assure that it has been flushed thoroughly. Keep children away from the unit until the water is safe to drink. Use only the following types of antifreeze: (A) 80% glycerol, by weight in water, undiluted, or (B) 22% magnesium chloride by weight, in water, undiluted. Store bought potable, non toxic RV antifreeze may be used.

WARNING: Automotive, radiator or windshield washer antifreeze could be harmful or fatal if swallowed. Do not use them in the fresh water system or to protect drain traps from freezing.

7. Hookup to campground electrical system. The power cord provided with your unit is normally adequate, but if you need an extension, be sure to use a 3-wire extension cord rated for at least 30 amps. If you use a 2-wire extension cord or a cheater plug with the third pin removed, your unit would not be properly grounded and someone could receive a serious, even fatal, shock. Your system might burn out a power cord rated at less than 30 amps.

WARNING: If using 110 volt appliances outside the camper, use only the exterior receptacle which is protected by a GFI (ground fault interrupter) circuit breaker to protect against electrical shock.

8. Towing your vehicle. Never travel with a hitch mounting below or more than 3 inches above a level trailer, or a hitch weight that overloads the tow vehicle axle. Carefully calculate and follow the weight capacity instructions contained in this manual.

Folding Camping Trailer Owner's Manual

Printed in U.S.A. 5/2004

Introduction

This manual contains operating and maintenance information that will familiarize you with your unit, along with some helpful suggestions to get you started. Most information applies to the full range of camping trailers Starcraft RV manufactures; specific characteristics of certain units are clearly titled. Photographs of unfamiliar items will help you quickly become acquainted with them.

Dealer's Responsibility

Your Starcraft RV dealer is responsible for servicing your warranty claims under Starcraft's Warranty program, but he does not himself warrant the unit. The dealer is also responsible for pre-delivery inspection on all new units sold to his customers, and for the *Dealer Review* described below.

Owner's Responsibility

Proper maintenance and care of your Starcraft RV unit will help you better enjoy the safe operation of your unit and will help you achieve lower operating costs.

Regular and proper maintenance should be performed as indicated in the maintenance section of this manual.

Insurance Coverage

Make sure your unit is insured. Contact your insurance agent prior to picking up your unit for information concerning your policy coverage.

Dealer Review

At the time of delivery we recommend the following steps be taken:

1. Review the Owner's Manual with the dealer. If you have any questions, he has the expertise to answer them and explain such things as hitch requirements and the weight information decal.
2. Go through the complete setup procedure and visually inspect the unit for any minor adjustments you feel are necessary. Have the dealer demonstrate the operation of all appliances, systems, and options.
3. Once you're satisfied that you understand the internal and external workings, road test it with the dealer. If you are not already familiar with cornering and backing procedures, you'll appreciate having a veteran with you.

4. This may be a good time to consider purchasing the following items that are mentioned throughout the manual. These items will provide a greater capacity for camping ease and enjoyment.
 - a) Electric Brake Control - The trailer brakes, if so equipped, can be operated separately for easier stopping and better bad weather handling.
 - b) Voltage Line Monitor - This lets you check the voltage entering your trailer. If the voltage in the campground drops, your appliances may be damaged.
 - c) Drain - A black garden hose should be used to distinguish the drain from the white fresh water hose.
 - d) Stabilizer Jacks - When at the four corners of your unit, they provide added stability.
 - e) Hose/City Fill - Just in case a city water hookup is provided at your campsite, carry a white garden hose.
 - f) Water Pressure Reducer - Water pressure at the campsite may be more than 60 PSI. A reducer will protect your water lines from bursting.
 - g) Extension Cord - For use if the 30 foot cord provided is not long enough to reach the campsite hookup. Use a heavy 3-wire type extension: rated for 30 amp (ten gauge wire).
 - h) Step Ramp - Use to level the trailer if the campsite is not level. It can be built at home using 2x8's.

Pre-Planning / Pre-Delivery

Hitch Requirements

A top-quality Class II hitch, properly installed to pull your trailer level is essential for trouble-free towing. On a flat surface, measure from the bottom of the frame to the ground under the front and rear of the unit. When these measurements agree, measure from the top of the coupler to the ground. This is your hitch height. This information will be needed by the installer of your hitch. The hitch requires a 2 inch ball.

WARNING: NEVER travel with a hitch set up that does not make the trailer and tow vehicle level. Do not allow the hitch weight to overload the tow vehicle's rear axle. Failure to comply could result in traffic hazard, poor handling, damage to the tow vehicle, or failure of the trailer axle, tires and bearings. These resulting failures are not warrantable.

NOTICE: With the exception of three models, 1701, 1707 and 2108, all fold down camper A-frame assemblies are designed for use of a weight-distributing hitch.

Wire Harness/Pigtail Installation

In addition to a hitch, you will also need to attach the camper pigtails to the towing vehicle electrical harness. Contact your tow vehicle dealer for correct gauges of wire, connection assistance, heavy duty flasher and battery isolator if necessary, for charging the battery in your unit.

Make certain the installation allows sufficient slack for turning, but not enough to touch the ground. Although the factory has already tested your electrical system, check all lights before you tow.

Break-Away Switch

Starcraft fold-down camping trailers that have been equipped with electric brakes are also supplied with a break-away switch which is capable of operating the brakes in case the trailer and tow vehicle are separated.

An on board deep cycle battery can supply power to the brakes through the break away switch.

The break away switch plunger cable should be connected to the tow vehicle with enough slack to allow the vehicle to turn without actuating the switch. Use an eyebolt to attach the cable to tow vehicle's bumper. **DO NOT** loop the cable over the hitch ball, attach it to the hook on the safety chain, or attach it in any other manner that might cause the break-away features to operate accidentally.

WARNING: NEVER use the break-away switch as a parking brake. The current needed to operate the brakes will drain the battery in a short time and the brakes will release when the voltage fails.

Camper Wire Color	Function	Car Hookup
Yellow	NLU	
White	Ground	Car Frame
Brown	Right Turn/Stop	Right Turn/Stop
Red	Left Turn/Stop	Left Turn/Stop
Green	Clearance Lights	Running Lights
Blue	Brakes	Brake Controller
Large Black	Charge Line	Battery or Isolator (fused)

Dolly Wheel Jack - All Models

Turn the crank clockwise to raise the camper to connect to, or disconnect from the tow vehicle. For travel, retract the dolly wheel (cranking counter clockwise) several inches off the ground and remove the wheel, stowing it in the camper or the tow vehicle.



Fig. 1. Starcraft dolly wheel jack.



Fig. 2. Dolly wheel jack in retracted travel position.

Coupler

To operate the coupler, lift the latch lever. While holding the latch lever up, pull the latch nose upward and rearward. The mechanism slides rearward to operate ball clamp. To latch on the ball, simply slide the mechanism forward.

NOTE: Starcraft couplers are not adjustable for ball fit. See Figs. 3 & 4.

NOTE: For safety, and to prevent possible unlatching, all trailer coupler latches, when in transit, should be secured with a safety pin, a 1/4" bolt, or a padlock.



Fig. 3. Starcraft coupler closed.

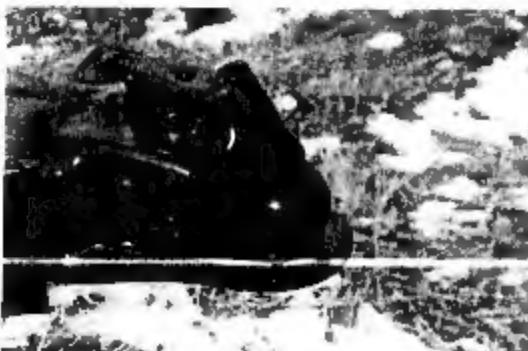


Fig. 4. Starcraft coupler open.

Safety Chain Installation

NOTE: IT IS THE DEALER'S RESPONSIBILITY TO ENSURE THAT THE SAFETY CHAIN IS INSTALLED CORRECTLY BEFORE THE UNIT IS DELIVERED.

Fold Down Camper Safety Chain Installation

1. Thread the chain into the frame structure from the underside where the coupler and A-frame join, threading the chain around the jack tube.
2. Center the chain for equal lengths on each side.
3. With chains at equal lengths insert a 3/8" x 1-1/2" grade 5 bolt with a 3/8" washer through a link of each chain, as close to the coupler as possible, with a second washer and a locknut turned flush with the end of the bolt. See Fig. 5 & 5A.



Fig. 5 & 5A.
Starcraft safety
chain installed
and bolted.



Safety Chain Usage

Cross the safety chains, provided with your camper, under the "A" frame and attach them to the hitch platform, or to eyebolts installed in the towing vehicle.

NOTE: State regulations require that the safety chains must be crossed under the tongue to prevent a hitch or coupling failure from dropping the tongue on the road. If a chain is damaged, regulations prohibit welding or splicing a new length of chain to it. Replace the entire chain and hook assembly.

Provide enough slack to turn corners freely, but do not allow the chain to drag on the pavement.

Mirrors

The mirrors on your car must allow you to see beyond your trailer. A set of auxiliary mirrors are invaluable during backing and driving. Most are not permanent and are quickly installed or removed.

Liquid Petroleum (LP) Set-Up

If the dealer has not already done so, request he install the LP bottle holder and bottle(s) as well as make the necessary connections to the regulator and bulkhead. For instructions, check the Owner's Packet. Either the Starcraft dealer or a qualified LP dealer should then fill the bottle(s) and check all connections with a leak detector and also check the LP regulator to ensure proper gas pressure to the appliances.

NOTE: Check state regulations where you intend to travel concerning restrictions for LP bottles and equipment.

WARNING: The LP gas service valve must be shut off while traveling. Failure to comply may result in a fire or explosion if involved in an accident.

NOTE: Starcraft RV, Inc. is not responsible for personal injury or property damage resulting from improperly maintained LP gas appliances and systems.

Pre-Travel Check

AREA	BE SURE
	Interior
Lights	Off
Vents, Doors, & Drawers	Closed & secured
Refrigerator & Ice Box	Secured with travel lock
Loose Items	Stored or lashed down
	Exterior
Tires*	Properly inflated & in good condition
Wheel Lug Nuts*	Tight
Lights - both vehicles*	Brake, turning, headlights, and taillights all work
Hoses (drain & fill)	Disconnected & stored, caps secured
Power Cord	Disconnected & stored
Step*	Pushed in
Stabilizing Jacks*	Retracted
Access doors & Hatchets*	Closed & locked
LP Gas Bottle(s)	Connections secured & service valve closed
	Hitching & Coupling
Hitch*	Secure
Safety Chains*	Properly crossed & attached
Break-Away Switch Connector*	Properly attached
Front Jack*	Raised
Mirrors*	Properly adjusted

* NOTE: Whenever you depart from home, a gas station, rest area or campsite, take some time to carefully perform these specific checks.

Trip Preparation

Sanitize Water System

To assure complete sanitation of your drinking water supply, you should cleanse a new system or one that may have been contaminated. Read Water Systems, page 18, and then proceed as follows:

1. Mix a solution of household bleach (5% sodium hypochlorite) and water (1/4 cup of bleach per 1 gallon of water for each 15 gal. tank capacity).
2. Pour this mixture into your water tank, completely filling the tank and water heater. Open each faucet until water flows steadily, then turn off all faucets.
3. Allow the solution to work for three hours.
4. Drain and thoroughly flush the system with fresh water (4-6 flushes).

WARNING: DO NOT use contaminated system until it has been cleaned and thoroughly flushed (4 - 6 flushes) with water. Keep children away from unit until the water is safe to drink.

NOTE: If the chlorine taste or odor lingers, pour one quart of vinegar mixed with five gallons of water into the tank. Drive a bit and let the vehicle motion agitate this solution; allow to sit a day or two. Then drain, fill, and flush again with fresh water.

Frame & Running Gear

Check the wheel lug nuts before your first trip and again after 25, 100, and 500 miles, and every 500 miles thereafter. They should be kept torqued to 50 to 75 ft./LBS. Aluminum wheels should be torqued to 85 ft./LBS.

Check the tire inflation against the manufacturers recommendations, as shown on the tire sidewall. Also check the rims and hubs for road damage, and check jack every 250 miles.

Spare Bulbs

The bulbs used in the clearance lights, taillights, and interior lights are standard automotive types usually available at service stations and auto parts stores. You may wish to purchase spares in advance to avoid an inconvenience later. Use the size specified.

Side Marker..... C194

Tail & Turn..... 1157

Dome Light..... 1141

Bunk Light..... 1141

Patio..... C922

See your towing vehicle owner's manual for the listing of light bulbs and fuses.

Trailering

Driving

You may need a little experience to gain assurance and become familiar with the feel of towing a trailer. Practice accelerating, turning, backing, and braking at home under favorable conditions before you take a trip. By doing this, you will get an idea of the effect of the additional weight and length of your unit. This will help you to remember to allow greater distances for safe passing and stopping.

Some states require slow moving vehicles on two-way roads to pull off at the first opportunity whenever several vehicles have lined up behind them, waiting to pass. This is a courtesy that might protect you from impatient drivers who may pass you without enough room.

Driving tips:

1. Move into traffic slowly and accelerate gradually.
2. Stay in the right lane as much as possible. Allow faster vehicles the right of way.
3. Before passing a slower vehicle, be certain that you have sufficient speed and highway space available to safely complete the maneuver. Signal all lane changes. Allow enough room between you and the vehicle you pass before returning to the right lane.
4. When turning, swing wide of the curb. The unit will turn closer to the curb than your car.
5. Shift to a lower gear when either ascending or descending a hill or steep grade.
6. Avoid sudden stops.

Braking & Emergency Stops

Anticipate stops well in advance so you can avoid panic stops which can cause your camper to jackknife, resulting in possible accident and injury.

When adjusted correctly, the brake controller in your tow vehicle should apply the camper brakes, if so equipped, slightly before the brakes on the tow vehicle take effect. This will avoid the tendency of the camper to jackknife in emergency braking situations or on slick pavement.

Runaway Camper

In the event your camper should disconnect from the hitch on the tow vehicle, reduce your speed slowly and edge over into the shoulder as soon as you can do so safely. Properly connected safety chains will keep the camper connected to the tow vehicle.

Swaying

If your trailer starts to sway or fishtail, DO NOT let up on the gas or apply the car brakes. Avoid quick corrective steering changes. Keep a steady or slightly increased pressure on the gas pedal (gently apply the trailer brake, if so equipped) to gain control, then gradually slow down. Winds or passing vehicles can cause some sway, but if it continues, follow the procedure above to regain control and carefully pull off the road and check for the cause, such as: low tire pressure, loose wheel lug nuts, improper loading (rear heavy), car suspension or alignment, or tow vehicle inadequacy.

Grades

Reducing your speed, using a lower transmission range or shifting to a lower gear will assist in braking and uphill it will help prevent the engine from overheating. It's best not to park on a grade, but if it is necessary, apply the brakes and have

someone place wheel blocks against the trailer tires. Then release the brakes slowly until the unit is stopped by the blocks. Apply the parking brake and place the transmission in park (or in gear if manual transmission).

Backing

This is a skill best learned from experience; perhaps in an empty parking lot. Place yourself so your approach will favor your left view; campsite to the left, for example. Station someone at the rear of the unit to make sure everything is clear and help guide you. Place your hand at the bottom of the steering wheel and move it in the direction you want the trailer to go. If the trailer starts to jackknife, stop, pull forward enough to align the units, and try again.

When backing into your campsite, remember to also watch above for branches and limbs that could harm your unit.

Tire Change

A tire change on the road may present extra problems and distractions. Be careful. Turn on the hazard warning flashers and set up flares or warning lights. Block the opposite tire. When raising the trailer, use a scissor or hydraulic type jack on a wood block directly under the main beam just behind the axle. **DO NOT** use a bumper jack.

If the trailer must be left on the jack while you get the tire repaired, place a block, or something more solid and substantial than the jack, next to or near the jack, directly under the frame main beam. Lower the jack, putting most of the trailer weight on the block. **BLOCK THE TRAILER WHEELS BEFORE YOU UNHITCH.**

Before jacking up the trailer, loosen all the wheel lug nuts. Jack up the trailer until the wheel spins freely. Remove the wheel lug nuts and the wheel and tire. Remove the center cap from the wheel and set it in the new wheel. Place the new wheel and tire on the hub. Hand tighten lug nuts being careful to center the countersunk wheel holes on the chamfered lug nuts. Lightly seat the lug nuts with the lug wrench. Lower trailer on to ground. Tighten wheel lug nuts to 50-75 foot pounds in the alternate pattern 1,3,5,2,4, 1,3,2,4 or 1, 3, 5, 2, 4, 6.

REMEMBER, after changing wheels it is very important to check the wheel lug nuts for tightness at 25, 100, 500 and every 500 miles thereafter to assure tightness. See also the *Service Interval Chart* on page 29.

DO NOT return a tire to your Starcraft Dealer or to Starcraft RV, Inc. Tires are warranted separately by each tire manufacturer. Contact the tire manufacturer or his authorized dealer. Check the tire warranty in the Starcraft Owners Packet that came with your unit.

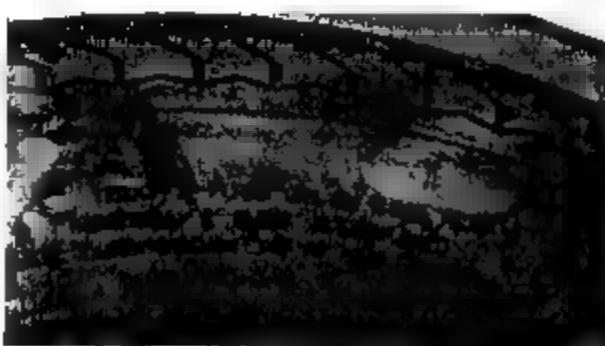


Fig. 6. Tire capacity and pressure statement

Tires

Proper tire inflation is extremely important. Pressures for trailer tires are higher than car tires. The correct pressure for any tire is stated on the tire sidewall. Generally, the capacity of the tire is stated in pounds followed by the required air pressure as PSI. Following are typical capacities and pressures.

5.30 x12	load range B	840# @ 60PSI
5.30 x12	load range C	1045# @ 80PSI
875-13	load range B	1065# @ 35PSI
875-13	load range C	1315# @ 60PSI
ST175 800 13C	load range C	1360# @ 50 PSI
ST180 800 13C	load range C	1480# @ 50 PSI

Trailer cargo carrying capacities are based on tire capacities. However, DO NOT underinflate a tire because you are underloaded.

Regularly check the tire air pressure when the tires are cold. The tire pressure may increase due to heat generated while traveling. DO NOT bleed the air from a hot tire. Under inflated tires decrease the load limit, tend to sway, shorten tread life, and can run hot. Overinflating causes a bouncy, rough ride that increases shock loads on all equipment and contents. Annual tire and wheel balancing can help give better tire mileage.

Tires should be inspected regularly. Check for uneven wear, road damage, foreign objects, bulging, or peeling.

Replace a tire when it is worn to 1/16" depth in two or more adjacent grooves, or to the level of the tread indicators molded into the bottom of the tread grooves.

New camper tires should be of the same size, ply rating, and load range as the tires they replace, and they should be designated for trailer service.

Wheel Lug Nuts

Before towing the camper, make sure that the wheel lug nuts are tight. On a trip, check the wheel lug nuts frequently and tighten them whenever necessary. See Service Interval Chart, page 29 and Tire Change, page 11. Before using your new camper for the first time, the wheel lug nuts should be torqued with a torque wrench by either you or your dealer. Twelve and thirteen inch wheel lug nuts should be torqued to 50 to 75 ft. lbs. If the trailer is equipped with aluminum wheels, torque the lug nuts to 85 ft. lbs. Wheels that come off, or bolts that break because they are loose, are not a warranty matter. Refer to the Daxstar Operation, Maintenance and Service Manual in your Starcraft Owner's Packet.

Federal Information Sticker

A (federally required) sticker, which is located on the roadside frame of the camping trailer lists the unit serial number and the gross vehicle weight rating (GVWR) for a specific tire size. Weight limits for the frame and axle are also listed.

Load Limits and Weight Distribution

The tires, axle, and the hitch support the entire weight of the trailer. For safety, and to prevent damage to these parts of the camper, maximum load limits have been established for each Starcraft camper. These limits are published on the INFORMATION STICKER. Damage or accident caused by overloading or improper loading will void any and all portions of your camper's warranty.

When loading for a trip, distribute the weight of loose items evenly around the inside of the camper. Heavy objects should be stored at floor level and secured to prevent shifting and possible damage to the camper. Assign permanently carried loose items a fixed storage area. Use Table 1: Load Calculations, page 13, to help you determine the best weight distribution.

Use of Table 1

Table 1 is designed to provide an easy method of calculating a camper's load carrying capacity or to determine the weight distribution in a loaded camper. The calculations listed in the Table can be computed by weighing the loaded camper and using the figures from the weight information sticker.

Net Carrying Capacity

The carrying capacity can be determined by weighing the EMPTY camper and subtracting the actual weight from the GVWR.

Hitch Weight

An easy way to find the hitch weight on the road or at home using a bathroom scale and a 4x4.

Measure from the bottom of the frame of your level camper to the ground, just in front of the tire. From this measurement, subtract the height of your scale and cut a 4x4 to the remaining figure. Zero the scale with the 4x4 on the scale.



Block the trailer wheels. Raise the tongue jack until the 4x4 and the scale can slide underneath. Lower the tongue until it rests on the 4x4. The weight shown is the hitch weight.

Axle Weight (AW)

The axle weight can be determined by weighing the loaded camper with both tires on the scales. Weigh one tire at a time to determine the weight distribution between the right and left sides of the camper.

Total Vehicle Weight (VW)

The total vehicle weight (VW) can be determined by weighing the LOADED CAMPER with both tires and the dolly wheel on the scales.

Weight Distribution & Rating Definitions:

Cargo carrying capacity for your unit is defined on a weight label placed in your unit. Refer to the label contained in your unit for specific weight information pertaining to your unit. This weight label is affixed on the inside of a cabinet door.

NOTE: While every effort is made to provide an accurate weight, it is possible that the weight of your specific unit may vary from the weight shown on the label.

Gross Axle Weight Rating (GAWR) - The value specified by the vehicle manufacturer as the maximum load carrying capacity of a single axle system, as measured at the tire ground interfaces.

Gross Combination Weight Rating (GCWR) - Means the maximum permissible loaded weight of the fully loaded towing vehicle including passengers (for motorized products 150 pounds each), all cargo, fluids, etc., plus the weight of the fully loaded towed vehicle.

Gross Vehicle Weight Rating (GVWR) - Means the maximum permissible weight of the trailer. The GVWR is equal to or greater than the sum of the unloaded vehicle weight plus the net carrying capacity.

Unloaded Vehicle Weight (UVW) - Means the weight of the trailer as built at the factory. If applicable, it includes full generator fuel, engine oil, and coolants. The UVW does not include cargo, fresh water, LP gas, or dealer installed accessories.

Net Carrying Capacity (NCC) – Means the maximum weight of all personal belongings: food, fresh water, LP gas, tools, dealer installed accessories, etc., that can be carried by the trailer. NCC is equal to or less than GVWR minus UVW Tongue or Hitch Weight.

Following are a couple simple formulas to express the above:

$$\begin{array}{lcl} UVW + NCC & = & GVWR \\ GVWR - UVW & = & NCC \end{array}$$

Hitch-to-Weight Ratio

To assure proper and safe handling of your camper behind your tow vehicle, cargo should be distributed so that 9 to 12 percent of the total weight is on the hitch ball. Total weight is loaded, ready to travel weight, which could be less than GVWR, but never more than GVWR. Also, when distributing load, be careful not to exceed GAWR.

NOTE: The total tire capacity (e.g. 5.30-12C @1045 each x 2 = 2090) is not required to equal GVWR since 9 to 12 percent will be on the hitch ball. For example, a camper could have a GVWR of 2,340 pounds, which, at first glance, would appear to overload a pair of 12" load range C tires with a total combined capacity of 2,090 pounds. In fact they are not overloaded as $2,340 - 281$ (12% of 2340) equals 2,059, 31 pounds under the combined tire capacity of 2,090.

Table 1: Load Calculations

Calculation	Desired Condition
The Gross Vehicle Weight Rating (GVWR) Minus the total weight of the empty trailer Equals the net CARRYING CAPACITY	= _____
The weight of the left wheel (with load) Plus the weight of the right wheel (with load) Equals the AXLE WEIGHT (AW)*	+ _____ - _____ The weight of the right and left wheel should be approximately equal.
The Gross Axle Weight Rating (GAWR) Minus the AW of the loaded camper Tells if the GAWR has been exceeded	- _____ = _____ The AW should be less than the GAWR.
The actual hitch weight (with load) Plus the Axle Weight (with load) Equals the TOTAL VEHICLE WEIGHT of the camper	+ _____ - _____ NOTE: If the tongue weight is below 9% or above 14% of the total weight, make changes in the weight distribution to bring the tongue weight within limits.
The Gross Vehicle Weight Rating (GVWR) Minus the TOTAL WEIGHT of the loaded camper Tells if the GVWR has been exceeded	- _____ = _____ The TOTAL WEIGHT of the loaded camper should be less than GVWR.

*The AW can be determined by weighing with both tires on the scale at the same time, but side-to-side weight distribution cannot be determined unless each side is weighed separately.

Exterior Set-Up (non slideout models)

Before setting up: If a boat, bicycles, or any luggage is being transported, remove it from the roof carrier **BEFORE** raising the roof. Block the trailer wheels whenever you unhitch. **DO NOT** raise or lower the roof with the stabilizer jacks set. The jacks may induce some twist in the frame which could throw the lift system temporarily out of alignment. Raising or lowering the roof under these conditions could cause damage to the lifter system.

REMEMBER: The stabilizer jacks should not be used to level the camper. Release the rooflatches **BEFORE** attempting to crank up the roof. **FAILURE TO DO SO WILL RESULT IN DAMAGE TO THE LIFTER SYSTEM**, which will not be covered by warranty.

NOTE: Canopy or add-a-room options should be attached to the camper before the roof is raised. Camping trailers equipped with awnings should have the poles and other hardware removed from the roof-mounted carrying case.

1. Position the trailer on a level spot and lower the dolly wheel jack until the dolly wheel touches the ground. Release the coupler and crank the jack down until the coupler is clear of the hitch ball. When setting up on soft ground, place a board under the dolly wheel.
2. Release the roof latches. See Fig. 7.



Fig. 7 Roof latch

3. Slide the crank handle into the crank shaft and turn the crank handle clockwise until red gauge wire becomes tight. **DO NOT OVER-CRANK THE WINCH.**
4. After the roof has been raised, set the stabilizer jacks. The main corner jacks are BAL screw jacks which are crank operated. To operate the BAL screw jacks, simply place crank handle onto shaft and turn. To lower, turn clockwise. To retract, turn counter clockwise.
5. Find bed supports under bed mats. Hang front "U" bed supports on front wall, placing legs in A-frame bracket holes closest to front wall. Hang rear scissor supports on rear wall, placing legs in bumper slots. See Fig. 8, 9 and 10.

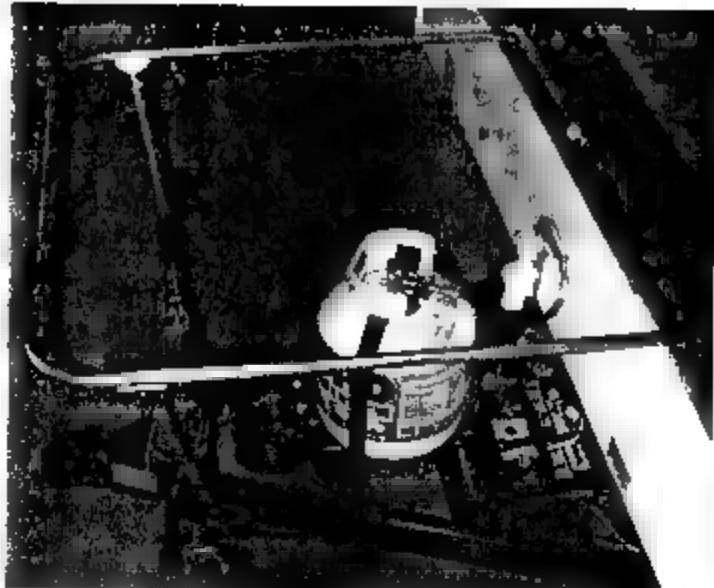


Fig. 8. Installing "U" bed support on front wall



Fig. 9. Set up bed with braces in place.



Fig. 10. Rear bed braces

6. Pull beds out. Install single tube supports on front beds using A-frame bracket hole toward coupler. Larger campers with 50" beds on the rear will also have single tube supports.
CAUTION: The bunk braces must be in place before pulling out the bunk. The bunk will not support itself. Damage to the slide mechanism could result.

7. Zip down the tent at the four lifters. The bunkend side panel goes between the lifter and the wall cap/bed slide moulding. Velcro the bunkend side panel to the wall cap/bed slide at the lifters. Wrap the lifter water covers around the lifter, and velcro to the tent side panel. See Figs. 11A & 11B.

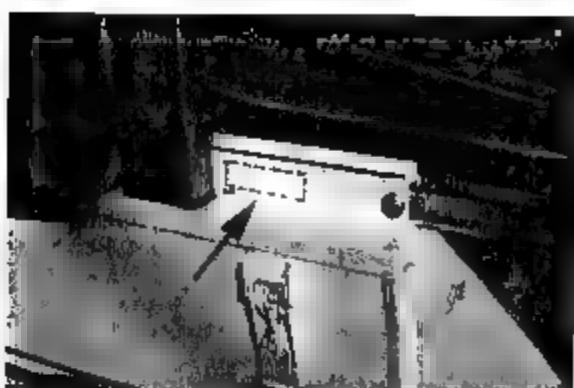


Fig. 11A and 11B Velcro fastener on corners (on wall cap/bed slide molding)

8. Wrap the bunkend side panels under the bed edges, hooking the shock cord loops around the metal retainers on the under side of the bed edges. See Fig. 12.



Fig. 12 Using shock cord retainers on bottom of bunk

9. Inside the unit, in the bunkend, clip the overhead support pole onto the tent bow, which will be laying on the bed mat. Push the support pole and tent bow up and out, raising the bunkend. Insert the adjuster end of support into the bracket on the inside of the roof end board. Adjust the length of the support bar at the adjuster until the bunkend canvas is tight. See Figs. 13A, 13B & 14.

10. Release the screen door from the roof by turning the twist locks. Swing the door down to the lower door. Lift up and insert the tabs, found at the bottom of the screen door. Into the notches located in the top of the door posts in the

sidewalls. See Figs. 15A & 15B. At the top of the screen door, push the bifold hinge flat against the roof side board, positioning the two white turn buttons to come through the slots in the hinge. Turn the two turn buttons 90 degrees to hold the screen door against the roof.

11. Fasten the latch that holds the screen door and lower door together.

12. Attach the canvas to the screen door with the velcro strips.



Fig. 13A & 13B. Roof bracket for tent pole (valance not shown for clarity)

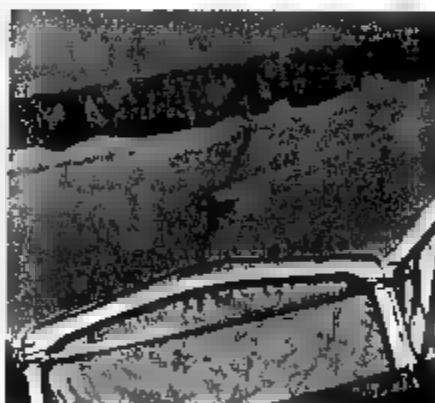
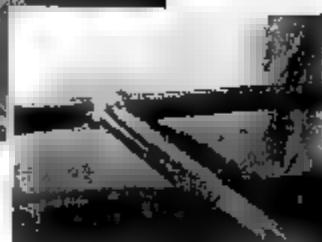


Fig. 14
Tent support bar

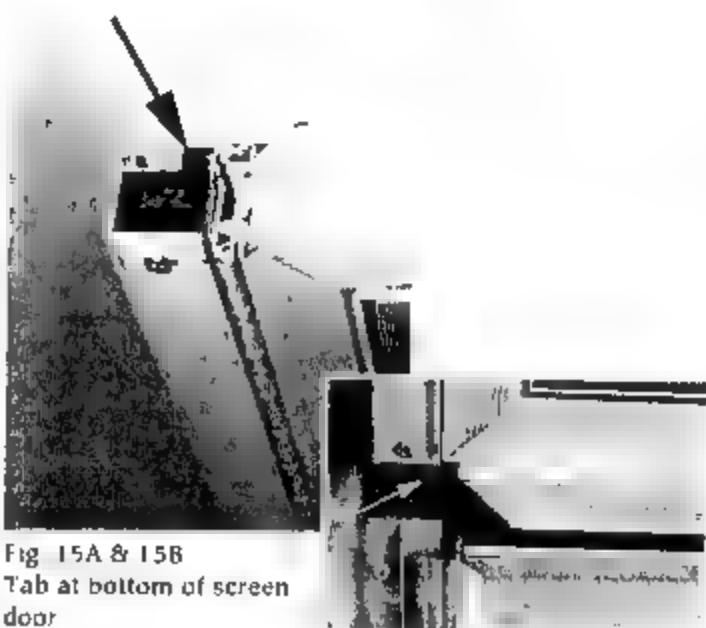


Fig. 15A & 15B
Tab at bottom of screen door

Exterior Setup (slideout models)

Exterior setup of slideout model campers is the same as all others. See pages 14 & 15. Set up of the slideout room is as follows:

1. Pull out the slideout until it stops
2. Tuck slideout tent into tent retainer under the velcro strip and then press onto the velcro on both ends of slideout. See Fig. 16.
3. Inside the slideout tent, raise the bunkend tent in the same manner as the front and rear bunkends.

NOTE: When setting up a slideout camper, you'll find a 1/8" wallboard sheet on the floor under the slideout rollers. The purpose of the sheet of wall board is to protect the floor vinyl during travel. The rollers may make impressions in the vinyl which is unavoidable. Such impressions will not be covered under warranty. You may discard the board if you are not concerned about minor roller impressions in the floor vinyl. If you choose to use the board, store it under a bed mattress until you are ready to travel again. When closing the camper, lay the board on the floor at a slight angle so that one roller at a time will roll up on the board. If all rollers hit the board edge at the same time, the board will slide. See Fig. 17.



Fig. 16. Exterior slideout showing tent retention.

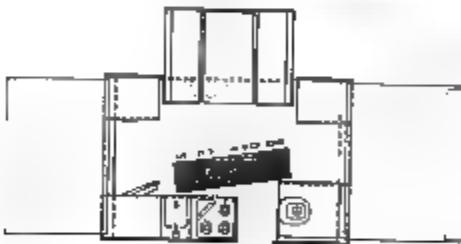


Fig. 17

Interior Set-Up

Sink Cabinet

Fold-Over – Swing the cabinet into place on the base cabinet. See Fig. 18.

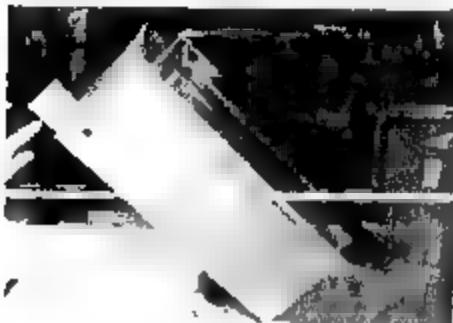


Fig. 18
Fold-over Sink.

Tables

NOTE: Store tables inside overnight and during bad weather.

All tables are of the freestanding type: unhook the retaining strap to free the legs, unfold and lock in position.

For travel, the table stows between the dinette seats, be sure that the table extrusion is inserted in the wall extrusion correctly.

Beds

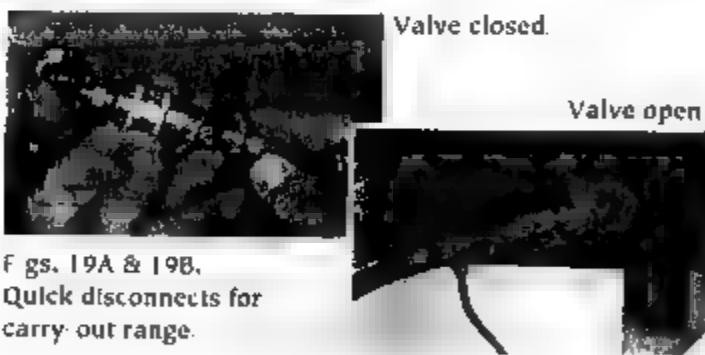
The bed ends on either end of the trailer are rated for approximately 1000 LBS.

WARNING: DO NOT leave children unattended in the bunk ends. A child might work his way out between the bunk and the tent and become caught in the elastic strapping, or fall to the ground.

Aside from the bunk ends, other beds are made using either the tables or gaucho. The tables are placed on supports between the dinette seats. The seat back cushions are spread over the table.

Carry-Out Range

A carry-out range is standard on most models. It can be used inside the camper, or outside, hanging on the exterior sidewall. An LP flex hose, with a quick disconnect, is provided at both locations. To make the LP connection, the shutoff handle must be at right angles to the coupler. See Figs. 19A & 19B. Pull the collar on the coupler toward the hose while inserting the male fitting on the stove box into the coupler. Once connected, push the collar back toward the range making the connection. Rotate the shutoff handle, making it parallel with the coupler, turning on the gas and locking the coupler. To remove, reverse this process.



Figs. 19A & 19B.
Quick disconnects for
carry-out range.

When used outside, the range hangs on an extrusion on the door side sidewall, to the rear of the door. The flex hose with the LP quick disconnect is found in a hatch, like the one used for the power cord. See Fig. 30.

For travel, stow the portable range inside on the floor. Depending on the model, a stove bracket, like the one on the outside of the camper, is provided on a cabinet front wall or dinette front. See Fig. 20.

A warning label has been located in the cooking area to remind you to provide an adequate supply of fresh air for combustion. Unlike homes, the amount of oxygen supply is limited due to the size of the camper. Proper ventilation when using the cooking appliance will avoid the dangers of asphyxiation. It is especially important that cooking appliances not be used for comfort heating as the danger for asphyxiation

is greater when the appliances are used for long periods of time. Also, see *Special Safety Procedures*, page 6.

NOTE: Store the range inside overnight and during bad weather.



Fig. 20 Carry out range attached to outside of camper



Drape Retainer Cord Installation

To prevent the possibility of drapes entering flame area of range, install drapes as follows.

1. The drapes that have straps sewn to the bottom are to be hung behind the range area.
2. Thread the shock cord (A) through the loops on the drape strap (B).
3. Attach each end of the shock cord to the plastic pulley (C) mounted on the bed slide extrusion.

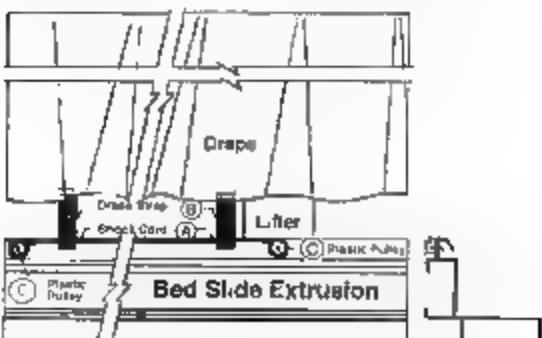


Diagram of drape retainer cord installation

Accessory Installation and Set-Up

Step Operation

For single steps:

1. Lift front of step and pull outward to disengage the cross bar on the back of the step from the notch at the rear of the slots in the step side frames.
2. Slide step out until the cross bar on the back of the step hits the end of the slots in the step side frames at the front end. Lower front of step to engage slot.
3. To stow the step for travel, lift the front end of step, push in, then lower front of step to engage retention notch. See Figs. 21A & 21B.

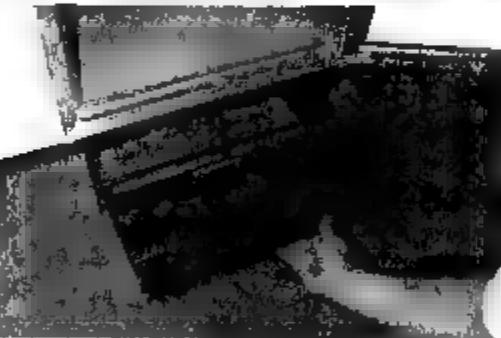
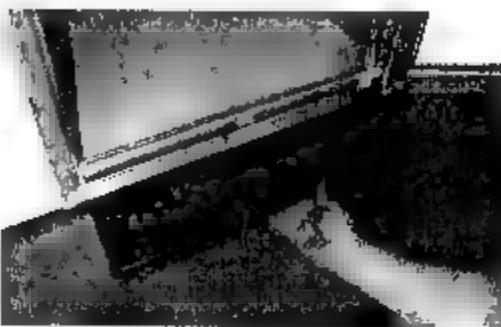


Fig. 21A & 21B. Step operation

Installing the Awning & Screen Room

The awning and screen room available for your new Starcraft tent camper are manufactured by Dometic. Refer to the instructions provided by Dometic for each of these accessories.

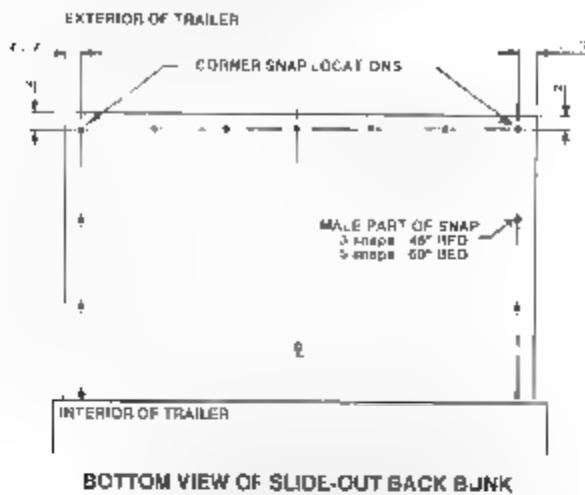
NOTE: For added security or in windy weather, the uprights should be anchored to the ground with hook stakes. The awning is not designed to withstand winds greater than 15 m.p.h. Roll up your awning if you suspect winds of this magnitude approaching. If it is raining, lower one of the front corner posts about 4" to allow the water to escape.

Bunk End Hide-Away Installation Instructions

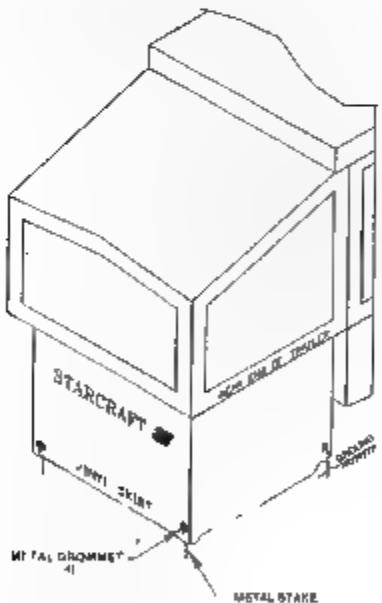
Rear end bed only

1. Attach male snaps to the bottom side of the slideout bunk board at the two corners (see Drawing 1).
2. Snap the hideaway vinyl skirt corner female snaps to the corner male snaps. They are located directly above the stake hook slots in the hideaway skirt.

3. All existing male snaps should be fastened to the bunk board. Use the female snap located on the hideaway skirt to space the male snap.
4. Insert four metal stake hooks through the metal grommets on the bottom of the skirt. Press firmly into the ground. (See Drawing 2.)



Drawing 1

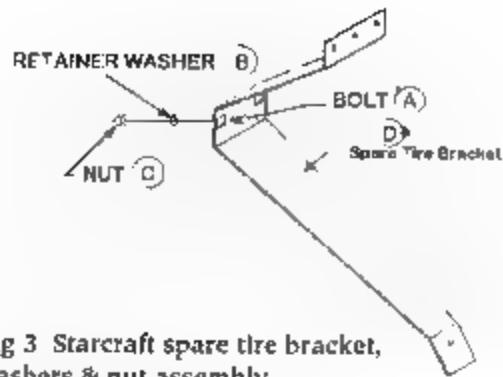


Drawing 2

Spare Tire Installation

All Starcrafts have a rear spare tire mount assembly. For installation, proceed as follows (see Drawing 3):

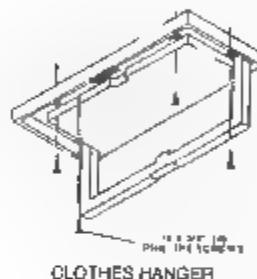
1. Insert bolt (A) through the square hole in the spare tire bracket (D).
2. Holding bolt (A) in place, slide one retainer washer (B) over thread portion of bolt.
3. Follow steps 1 & 2 for both bolts.
4. Place the spare tire over the two bolts and attach nuts (C) and tighten securely.



Drawing 3 Starcraft spare tire bracket, bolt, washers & nut assembly

Clothes Hanger Installation

The clothes hanger may be installed as shown below at the appropriate location, depending on what model camper you have.



2107
2407

FRONT

1707
2406
2411

1701
2106
2410

> No Clothes Bar

Bunk Light Installation

Dome lights now contain a 12 volt power jack for connecting remote bunk lights. See Fig. 22 & 23.

1. Place the 12 volt light at midpoint on the tent roof and snap it to the tent support bar. The cord should be extended toward the light receptacle.
2. It is recommended that you wrap the cord around tent support bar a minimum of two times.
3. Insert the cord plug into the 12 volt jack in the dome light.

CAUTION: 12 volt lighting will produce heat. Care should be taken when handling the fixture after the light has been on for some time.

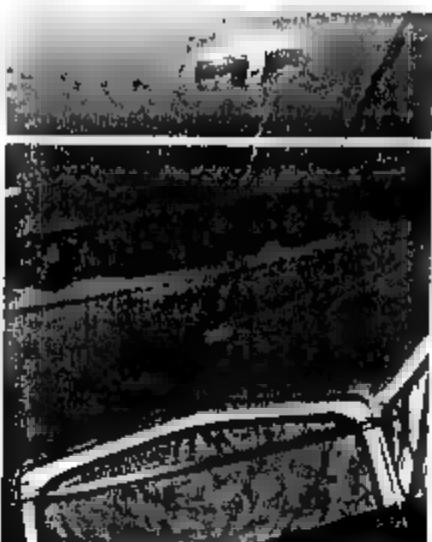


Fig. 22
Bunkend dome light



Fig. 23
Slideout dome light



Fig. 24C
Different model
battery rack
applications.

NOTE: Our battery charge harness contains a fuse. Whenever a battery charge line is connected to a tow vehicle battery, that charge line should also be fused at the tow vehicle battery. Fuse according to wire size. A charge line should be minimum 10 gauge wire with a 30 amp fuse.

Water Systems

Fresh water may be supplied to the sink from one of two sources; either a water tank or a city water hook-up. Fixtures for both sources are located adjacent to each other on the same side of the camper and are labeled.

You should install a pressure reducer in the campground faucet that will limit the pressure to 60 PSI if the source pressure exceeds that amount. The city water bypasses the internal water tank, but does fill the water heater. Open a hot water faucet to help fill the heater tank. In either case, put only clean drinkable water in the system.

Water is moved through the system by a 12 volt water pump or city water pressure.

Water Fills

There are two water fills on Starcraft campers. See Fig. 25 and Fig. 26. The city water fill uses a hose connection which can be used to provide water pressure without the use of the 12 volt pump. The country or "gravity" water fill is used to pour water into the storage tank when water hook ups are not available.



Fig. 25
City water fill

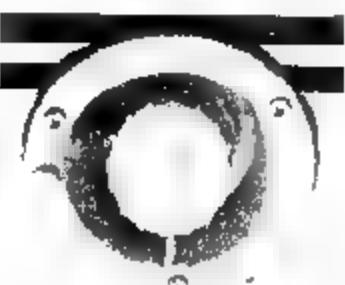


Fig. 26
Gravity water fill

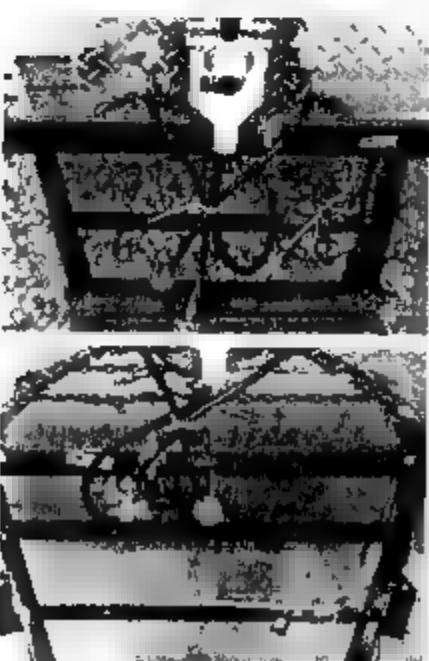


Fig. 24A, 24B.
Different model
battery rack
applications.

When an optional water heater is installed a conventional hot/cold mixing faucet will be installed. This faucet will operate on 12 volt demand pump or city water pressure.

Sink Drain

The outlet port for the sink drain is located directly beneath the sink area under the trailer. Connect a black garden hose to the sink drain fixture and run it to a park service septic outlet or drain directly into a portable holding tank.

NOTE: Sink drainage through a garden hose will be very slow. The longer the hose is, the slower it will drain.

To avoid contaminating your water system, use a white hose for fresh water and a black hose for drainage. If you use buckets, paint or label them.

Demand Pump

The pressure in the internal water system comes from a 12 volt demand pump. Open the faucet the first time you turn on the demand pump until the water flows steadily, then close the faucet. When the system is pressurized, the pump will stay off until you use water. Then the pump turns on to meet the demand. If it turns on between uses, check the system for leaks. Do not run the pump when the tank is empty. Before breaking camp, turn the pump switch to off and make sure it's off by turning on the cold water faucet. When you're sure the pump is off, close the faucet. See Step 4 under Storage, page 27, for cold weather protection.

Water Heater

The water heater will fill automatically either from the fresh water tank or when connected to the city waterline. When filling the fresh water tank, open a hot water faucet briefly, with the pump switch "ON" to allow the water heater to fill. Make sure the water heater is full before trying to light it.

NOTE: See the instructions provided by the manufacturer of the water heater for important operating and safety information.

NOTE: When draining the water heater, use a 1-1/16" socket to remove the drain plug. The drain plug is also the sacrificial anode which protects the tank from chemical deterioration and electrolysis. As the water heater is used and aged, the anode will deplete. It will have a rather disgusting, eaten away appearance. This is normal. When completely or mostly gone, it should be replaced.

12 Volt Cassette Toilet

Available as an option on some models the 12 volt recirculating toilet is a completely self-contained unit that requires no outside water connection or inside holding tank. Complete operating instructions are included in the manufacturer's literature in the Owner's Packet.

Shower

Before shower use, remove the cap from the shower drain under the floor and replace it with a 90 degree hose fitting, provided with the shower option. Either connect to a portable holding tank or use a garden hose to drain into the park service or a bucket. A "Y" connection to the sink drain will reduce the amount of hose needed.

To use the shower be sure the drain is open. Open the faucet until the water flows steadily, use the "ON/OFF" switch on the shower head to wet down and then shut off the water. This maintains proper temperature and conserves water. Once fully lathered, switch "ON" and rinse.

NOTE: To prevent excessive moisture buildup, use cross-ventilation when the weather permits, but also open the vent.

Sanitizing the Water Storage Tank

Sanitize the fresh water storage tank periodically using chlorine solution followed by several clear water rinses.

Prepare a solution of 1/4 cup of household-type liquid chlorine bleach to one gallon of water for each 15 gallons tank capacity.

Close drains and valves, pour chlorine solution into the storage tank, and complete filling the tank with fresh water.

Open faucets in turn until water flows steadily to purge air from lines.

Top off the tank with fresh water and allow the solution to work for three hours.

Drain the tank and flush the entire system with fresh water.

If the chlorine taste lingers, pour a solution of one quart of vinegar and five gallons of fresh water into the tank and allow it to remain there for a day or two, agitated by the normal motion of driving. Then drain the tank and flush the system until the vinegar taste disappears.

WARNING: DO NOT use contaminated system until it has been cleaned and thoroughly flushed (4 - 6 flushes), with water. Keep children away from unit until the water is safe to drink.

Draining the Water System and Heater

If the camper is to be stored in temperatures below freezing, the fresh water system should be drained as follows:

1. Empty the fresh water storage tank by opening the tank drain valve. If the tank is above the floor, the valve is on the end of the tank and is accessed from inside the camper. If the tank is under the floor, in the frame, the tank drain is under the floor also, to the rear of the tank, off to the side, hanging from the frame. The drains that are accessed from inside the camper are attached directly to the end of the tank with a piece of white hose connected, which passes through the floor. Rotate the valve handle to open the valve to drain the tank. The drain valve for tanks under the floor is a push-pull "T" handle. To open the valve, pull the handle outward. To close the valve, push the handle back in.
2. Turn the pump to "On" and open cold water faucets.
3. Turn the pump to "Off" when the flow of water stops.
4. Open the drains on the hot and cold water pipes located under floor of unit. The drains consist of male pipe thread fittings with screw on caps. See Fig. 27.
5. Open the drain valve on the bottom of the water heater, as well as the water heater safety valve. See Fig. 28.

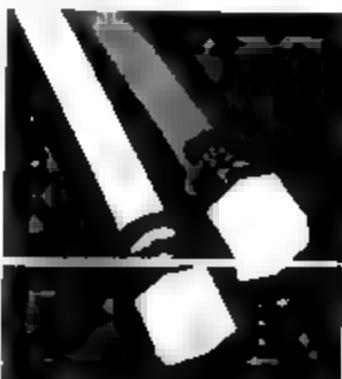


Fig. 27
Low point drains - typical



Fig. 28
Water heater, pressure relief valve at top drain valve anode at bottom

DO NOT run the pump without water in the system. Always keep the pump switch "off" when the system is empty or when connected to city water. Running the pump dry can damage it and will void the warranty.

NOTE: when draining the water heater, use a 1-1/16" socket to remove the drain plug. The drain plug is also the sacrificial anode which protects the tank from chemical deterioration and electrolysis. As the water heater is used and ages, the anode will deplete. It will have a rather disgusting, eaten away appearance. This is normal. When completely or mostly gone, it should be replaced.

Winterizing the Water system

Once you have drained the water system, as instructed above, the system can be winterized in two ways. The first step, in either approach, is to pour at least a half gallon of potable antifreeze into the water tank. Then turn on the pump to draw antifreeze through the water pump, thus winterizing the pump. You may use store bought potable, non toxic RV antifreeze.

If you choose to do so, you can winterize the whole trailer with antifreeze. This will require additional antifreeze. If your camper has a water heater, you will need to make, or purchase, a means of bypassing the water heater, so as not to fill it with antifreeze. Pump antifreeze through all water lines and all faucets.

The best way to winterize is to use air. You can purchase at your local hardware store, or perhaps from your dealer, enough parts to adapt the city water fill connection to an air hose connection. Simply blow all water out by opening all drains and faucets. Set regulator for not more than 60 PSI.

REMEMBER, you must use RV antifreeze to winterize the pump, even if you winterize with air

WARNING: Automotive or windshield washer type antifreeze can be fatal if swallowed. DO NOT use them in the fresh water system.

Electrical System

110 Volt AC

110 volt AC power is distributed to the camper through the converter. Two circuit breakers can be found on the left front of the converter face. Unlock the metal door for access. The

15 amp breaker powers the converter and the recepts in the camper. The 20 amp breaker is for an air conditioner. To power the converter and interior recepts, find the 30 amp power cord on the off door side of the camper (located in a round hatch). See Fig. 20, page 22. Pull the cord out and plug into the campground power stand. Most campgrounds provide 30 amp recepts. Avoid cheater plugs and 15 or 20 amp recepts as much as possible. You can plug into a 15 or 20 amp recept, but you will not be able to run an air conditioner. If 110 volt AC powered devices are used outside the camper, use the GFI protected recept on the door side exterior side wall.

Circuit Overload

To reset a circuit breaker after an overload:

1. Turn off all electrical appliances.
2. Reset the breaker by turning it momentarily to the "OFF" position, then back to "ON".

Determine why the circuit breaker "tripped". The cause could be an overloaded circuit, a faulty appliance (or other piece of electrical equipment), or defective wiring.

WARNING: DO NOT use a 15 amp extension cord on campers that have a 30 amp power cord, or use a cheater plug that would eliminate the grounding circuit (third wire) on the power cord. Failure to comply could result in electrical shock and/or fire.

12 Volt DC

12 volt DC power to the interior of the camper is supplied by an onboard battery, or by the converter when the camper is plugged into 110 volt AC power. Running lights are powered by the tow vehicle and are fused in the tow vehicle. An onboard battery is charged by the converter and can be charged by the tow vehicle, provided the tow vehicle is wired for that purpose.

Refer to the 12 volt schematic at the end of this owner's manual for pigtail hookup.

The running lights, brake lights and turn signals are wired to operate on 12 volt power from the tow vehicle. The interior lights and options of water pump, furnace and electric toilet operate on 12 volt DC supplied by the converter, or an onboard battery. The converter switches automatically to battery when powered down.

NOTE: When a charge line is installed to charge an onboard battery, the factory battery charge harness, which is 10 gauge cable, contains a 30 amp fuse at the battery. When the tow vehicle is wired, use at least 10 gauge wire, which must also be fused at the tow vehicle battery. There must be a fuse, appropriately sized, at each power source.

Prolonged battery use or long term storage with the battery connected to the converter will run a battery down, therefore requiring recharging. To minimize battery draw down, use a deep cycle battery with not less than 150 minutes of reserve. Conserve power use. Wire your camper and tow vehicle to charge the battery while in transit.

The converter used in the 2005 campers is an all electronic converter using the latest high tech circuitry and, therefore can produce steady, clean output, voltage, even during low or high input voltage variations. All converters have charging

capability from a low trickle charge to maximum output of 30 amps.

To access the 110 volt AC circuit breakers, the 12 volt DC output fuses, and the battery to converter fuse, open down the plastic door. The fuse to the far right is the battery to converter fuse.

NOTE: Do not use replacement fuses with higher amperage ratings.

These converters will not self destruct when subjected to short circuits or overloads. An internal overload/short circuit sensor will shut the converter down. If this overload/short circuit situation does not stop and 12 volt DC output ceases, determine the cause and location. A short circuit will shut the converter down instantly, even before a fuse is blown! A red LED at any of the fuse locations indicates a blown fuse or open 12V circuit such as a loose or cut wire. Once the fault is corrected, the converter will come on again. If an output fuse has been blown, replace it. When the converter 12 volt DC output has shut down, 110 volt AC will still be available in the camper.

An AC input fuse is built into the circuit board to protect the converter board from high AC voltage input spikes. If the AC input fuse blows, there will be no 12 volt output, but you will still have 110 volt AC in the camper recepts. The AC input fuse is replaceable.

The converter has an automatic battery maintenance processor which keeps the battery charged while the unit is plugged in. This prevents overcharging of the battery and also prevents sulfating of the battery. Because of circuit design, the converter, when not in operation, will draw current from the battery on an average of 10 milliamperes. Additionally, the LP detector will draw approximately 75 milliamperes. To avoid a dead battery during long term storage, which will occur in 10 to 20 days, depending on battery condition, disconnect the battery from the converter. This can be accomplished by (1) disconnecting the positive battery cable, (2) pulling the 20 amp fuse in the battery to converter harness at the battery, or (3) pulling the battery to converter fuse in the converter. This fuse is located at the far right end of the fuse block in the right face of the converter. A red wire can be seen coming into the fuse holder.

When in 12 volt mode, a refrigerator operates on battery power only. **THE REFRIGERATOR SHOULD NEVER BE WIRED TO OPERATE FROM THE CONVERTER**, as the refrigerator requires more power than the converter can supply. The 12 volt mode for the refrigerator is a maintenance mode only, to be used only while in transit. The refrigerator could be powered by an onboard battery, but only if it is being charged by the tow vehicle. Preferably, the refrigerator should be powered directly from the tow vehicle through the chassis plug. When not in transit, the refrigerator should be in LP gas mode, or to 110 volt AC mode. See the 12 volt schematic at the back of this manual.

NOTE: All Starcraft fold-down campers have kill switches for the dome lights, furnace and refrigerator. See Fig. 29. These switches are mounted in a bracket which is fastened to the fold-over sink base cabinet. When the cabinet is set up to use, 12V power is supplied to the dome lights and furnace through these switches. The 12V power to the refrigerator is cut off at the same time through one of these switches.

When the cabinet is in the fold down or travel position, the dome lights and furnace will not operate due to the kill switches cutting off the power supply. The refrigerator will then operate

from 12V power if supplied to the switch and the refrigerator switch to 12V ON.

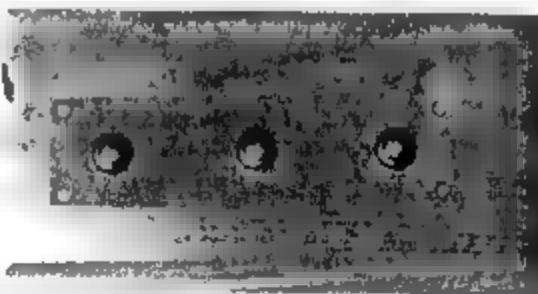


Fig. 29 Starcraft kill switches



Fig. 30 Power cord hatch

Electric Brakes

Electric brakes are powered by the tow vehicle and are actuated by an electronic controller mounted under the dash in front of the driver. The brakes will operate automatically during deceleration or can be hand operated. Connection to the trailer is provided for in the car-to-camper pigtail and the trailer chassis harness. Install and adjust an electronic brake controller according to manufacturer specifications. See 12 Volt Schematic. See, also, Service Interval Chart, page 29.

LP Gas System

LP (Liquid propane) gas is an efficient, inexpensive, portable fuel that burns readily with intense heat. It is used for cooking, heating, and refrigeration. The LP gas systems are designed and built to rigid standards. They are tested before leaving the factory and with proper care and maintenance they are safe. Except for simple connection tightening, take your unit to the dealer for LP gas problems. The LP bottle should always be filled and the regulator checked by an authorized LP supplier. Read the manufacturers' instructions before using any LP gas appliance.

NOTE: STARCRAFT RV, Inc. is not responsible for personal injury or property damage resulting from improper use or maintenance of LP gas appliances or systems.

LP gas has a distinctive odor (you might notice this as you light the appliances). If you smell gas, immediately investigate the source. The gas is heavier than air and settles in low areas. It could cause suffocation or create a fire hazard. Your camper has installed, on the inside, an LP detector. Read the LP detector owner's manual and understand how it operates.

WARNING: DO NOT bring or store LP gas containers, gasoline, or other flammable liquids inside the camper. LP bottles are equipped with safety devices which relieve excessive pressure by discharging gas to the atmosphere. An improperly used or poorly maintained LP system can cause a fire or explosion.

To operate any LP gas appliance, be sure all appliances are off, then open the service valve on the bottle, found on the "A" frame. At first some air in the gas line may escape as you open a valve, extinguishing your lighter. Likewise when you close the bottle service valve, some gas remains in the line unless you light a burner to burn off the excess. Turn the burner off when the flame burns out.

As of September 1, 1997, we have been using the new Type I OPD valve (overfill prevention device) on all LP tanks (4-40 lbs.), on all RV products. This new Type I OPD valve is designed with both male external and female internal threading. It will accept the old POL and regulator you're accustomed to seeing and it will accept the new Type I hose connection, which became mandatory September 1, 1998 on all LP tanks 4-40 lbs., which now connects the detached regulator to the tank.

The new Type I OPD valve now contains a float operated valve which shuts off gas entering the tank when being filled, at the 80% level, preventing overfilling. It also contains a new, improved, more sensitive excess flow valve which will prevent LP gas escaping into the atmosphere on all full tanks with no hoses or regulators connected. On the old tank valves, you could open the valve and empty the tank into the atmosphere. Because of the new, more sensitive excess flow valve, we all must learn how to open tank valves. After filling a tank and reconnecting it to the LP system, you MUST open the Type I OPD tank valve SLOWLY. Opening the tank quickly will lock out the new excess flow valve, preventing gas flow into the LP system. If this happens, close the valve, wait a few seconds and reopen SLOWLY. This new excess flow valve will not lock out when an appliance, such as a furnace, comes on.

Regarding old tanks and valves and the new regulations now in effect: As of October 1, 1998, any LP tank, 4-40 lbs., which has reached its 12-year recertification date (12 years from date of manufacture stamped onto the tank), must either be replaced or refitted with the new Type I OPD valve. It will probably be less expensive to replace the tank as a replacement valve will likely be more expensive than a new tank with a new Type I OPD valve on it.

The new Type I OPD valve is easily identifiable in that it is a 3-sided handle with OPD cast into the handle. The new Type I hose connection uses the external threading on the Type I OPD valve and black or green plastic. The new regulations mandating this new LP equipment and rules were created and established by the NFPA (National Fire Protection Association) and are administered by the RVIA. See Fig. 31

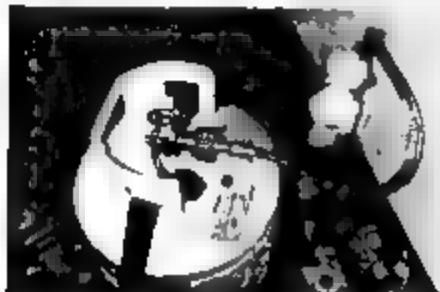


Fig. 31. New OPD.

DANGER

IF YOU SMELL GAS

1. Extinguish any open flames, pilot lights and all smoking materials.
2. Do not touch electrical switches.
3. Shut off the gas supply at the container valve(s) or gas supply connection.
4. Open doors and other ventilating openings.
5. Leave the area until odor clears.
6. Have the gas system checked and leakage source corrected before using again.

**FAILURE TO COMPLY COULD
RESULT IN EXPLOSION RESULTING
IN DEATH OR SERIOUS INJURY**

Single LP Bottle

Single LP bottles are mounted to a bracket or tray welded to the A-frame, using tie down hook straps. See Figs. 32A & 32B.

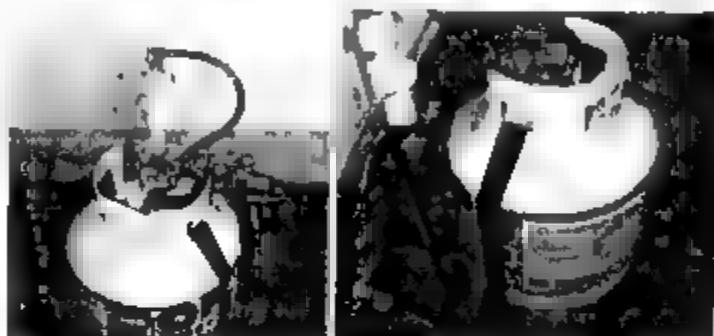


Fig. 32A & 32B Single LP bottle and retainer straps.

Double LP Bottles

Double gas bottles come installed on some models. The regulator is somewhat different from that on the single bottle, and the hold down brackets are different. Refer to the photographs. See Fig. 33 and Fig. 34.

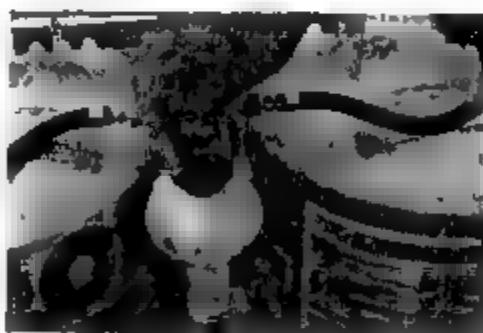


Fig. 33.
Auto switch
over valve

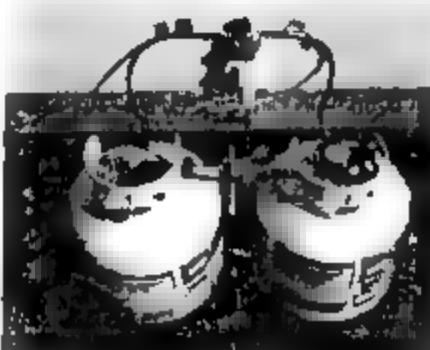


Fig. 34
Double LP gas
bottle installation

Auto Switch Over Valve

The auto switch over valve is part of the pressure regulator and is at the top of the regulator. Notice the plastic dome with a pop up red/green indicator. The purpose of the switch over is to allow automatic switching from an empty tank to the second, presumably full tank. See Fig. 33.

When two full tanks are installed, open both tank valves. When one tank goes empty, a red indicator will pop up in the dome. The valve will automatically switch to the full tank. On the front of the switch over valve is a black plastic lever. Move the lever toward the full tank. Whichever way you move it, it will be to the full tank. Once you have moved the lever toward the full tank, the green indicator will again appear. You may now close the valve on the empty tank, remove the tank and have it refilled. Reinstall the full tank, connect the hose and open the tank valve.

NOTE: Both tank valves must be open in order for auto switch over to occur.

Filling LP Gas Bottles

Turn all gas appliances in the camper to the "OFF" position, and close the service valve on top of the gas bottle(s) finger tight. Disconnect POL nut (right-hand thread) from the gas bottle, then remove the bottle(s) from the mounting frame.

Take the bottle(s) to an authorized LP supplier to be filled. Always transport the bottle in an upright position.

When installing filled bottles, fasten the bottle(s) securely to the camper, attach the regulator, and **MAKE SURE THAT ALL LP GAS APPLIANCES ARE SHUT OFF BEFORE OPENING THE SERVICE VALVE.** The service valve should be closed when the camping trailer is not in use.

WARNING: DO NOT smoke or strike a match or use any kind of open flame near LP bottles when they are being filled. A fire or explosion may result.

LP Bottle Maintenance

A regulator dust cover or a bottle cover should be used at all times. LP bottles should be kept free from rust and painted white (or some other highly reflective color) to reduce expansion of LP gas because of heat.

LP Gas Line Check

After each refill and each 5,000 miles or every 30 days the LP gas line should be checked.

Check the gas line connections as follows:

- a) Turn off all burners and pilot lights.
- b) Open the door and windows.
- c) Open the gas bottle service valve.
- d) Test all line connections with an approved leak detector, bubble solution or soapy water. **DO NOT** use ammonia, chlorine solutions or an open flame. If bubbles indicate a leak, tighten the connections until bubbles stop. If bubbles persist, close the service valve and contact your Starcraft dealer or authorized LP supplier.

Regulator

The regulator pressure should be checked periodically to ensure efficient operation of the appliances. The correct line pressure for all of the LP gas appliances is eleven (11) inches

of water column pressure. Most LP gas suppliers have the equipment to make this check for you; line pressure should be tested at least every six month.

NOTE: LP gas regulators must always be installed with regulator vent facing downward. Regulators that are not in compartments have been equipped with a protective cover. Make sure that regulator vent faces

Freeze-Up

Freeze-up of LP gas bottles is usually caused by one of three things:

1. Moisture in the bottle.
2. A greater demand than the bottle capacity at a particular temperature.

You can use these precautions to prevent this problem:

1. Use moisture-free LP gas.
2. Keep the service valves closed during storage.
3. Have the dealer add anhydrous methanol.

If moisture is present, have the dealer purge the bottle. Since LP gas does not vaporize as rapidly in cold weather, normal demands may become excessive and cause a refrigeration effect which can freeze up the regulator. Your dealer can tell you about appliance demands which can be met by your bottle at various temperatures.

Lifter System

All Starcraft lifter systems are brake winch operated. When you crank the roof up, the weight of the roof is ultimately supported by a locked-up brake mechanism inside the winch. To lower the roof, you simply turn the crank handle counter clockwise. Once the brake releases, it will continue to slip as you continue to crank, allowing a smooth descent. If you stop cranking, going up or down, the brake and pawl hold the roof in place.

When cranking the roof up, you must hear a continuous clicking sound. The clicking is a spring loaded pawl clicking across a toothed wheel between the brake pads. It is this pawl and toothed wheel that physically supports the roof. If you do not hear the clicking, **BEWARE**, the roof may fall. If the pawl disengages and the roof falls, the crank handle will spin rapidly and freely. Carefully lower the roof and take your camper to a Starcraft Dealer for repairs. This failure, while possible, is rare. See Fig. 35.

When lowering the roof, you will not hear the clicking sound because the brake is slipping, not turning.

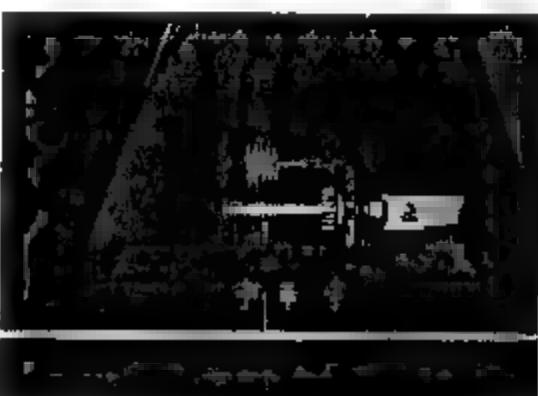


Fig. 35. Winch showing brake and pawl

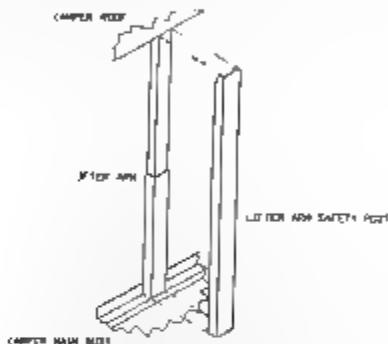
Starcraft winches do not have up and down stops. They have only an up stop indicator in the form of a red cable between the lower side wall and the roof. Over cranking, or cranking against a latched down roof, can have serious consequences in the form of bent frame members, ruptured spring tubes, or broken cables.

DO NOT FORGET TO UNLATCH ROOF LATCHES. Serious damage can occur which is not warranted.

After raising the camper roof, the lifter arm safety posts must be installed as shown. The safety posts should be installed in opposite corners, left front and right rear—or right front and left rear.

For care and maintenance of the lifter system, see the *Service Interval Chart* on page 29 and *Standard Care* on pages 30 & 31

NOTE: If mechanical, operational, or levelness difficulties develop with the lifter system in your camper, contact a Starcraft Dealer.



Take-Down (non slideout models)

Interior

1. Zip up the plastic windows and close the curtains, or remove them from the curtain tracks. Close the roof vent, and unzip the canvas corners three fourths of the way.

2. Turn the range control knobs to "OFF", and turn off the furnace gas valve and the thermostat. Put the sink cabinet into its storage position.

3. Turn off the interior lights, the patio light. Place the carryout range in its storage position. Store the table and the seat cushions.

4. Unfasten the velcro that holds the bunk ends to the top of the sidewall. Remove the overhead poles and store them under the bunk cushions. Fold down the bed bows and close or remove the privacy drapes. The bed bows must be down all the way to prevent damage to the bunk end canvas.

5. Detach the canvas sidewall flaps from the screen door frame, swing the screen door to the roof, and secure it in place.

6. Make sure that all loose items are stowed properly and that nothing sticks up above the sidewalls.

Exterior

1. Shut off the service valve on the LP gas bottle.
2. Turn the water heater and refrigerator gas controls to "OFF".
3. Disconnect the electrical and water hookups, and switch the refrigerator to 12 volt DC operation via the outside access panel. See Figs. 36 & 37, page 26.

4. Unfasten the velcro that holds the lifter covers in place. Unfasten the velcro and shock cord loops that hold the canvas to the underside of the bunk ends, and fold the canvas in neatly. Fold the bunkend side curtains and place on top of the bed with the outside of the panels against the outside of the bunkend top. Lay out as neat as possible avoiding bunched up tent material. Pull the corners of the bunkend off of the corners of the bed to prevent them being damaged at the end of the wall cap bed sides when pushing the bed in.

5. On 80" and larger beds, remove the outer single tube bed supports which are not hooked over the end wall. Slide the beds into the camper. Store the bed braces and supports under the bed mats. The beds **MUST** be pushed in before lowering the roof, even part way, to avoid tearing the tent side panels.

6. Retract the stabilizer jacks up to the travel position.

CAUTION: To keep the lifters from binding, raise the stabilizer jacks **BEFORE** lowering the roof.

7. Lower the roof by turning the lifter crank in a counterclockwise direction. Keep the canvas tucked inside the camper and well away from the lifter posts to prevent tears and rips. Do not pinch the canvas between the roof and the sidewall.

NOTE: If an awning or a screen room option is used, they will be easier to remove when the roof is at a convenient working height. Roof-mounted awnings should have the poles and rafters removed or collapsed as the roof is lowered.

8. Lower the roof and latch the roof latches.

9. Stow the step.

Take-Down (slideout models)

Take down for slideout model campers, except for the slideout itself, is the same as any other camper. Before lowering the roof, the slideout must be knocked down and pushed in.

Interior

1. Remove slideout dinette cushions. Stow seat back cushions in one dinette seat. Stow seat cushions wherever you can find space. Fold seat backs down and stow table.

2. Remove bunkend tent support pole. Stow under bed matt. Fold tent bow down onto dinette.

Exterior

1. Unfasten the velcro and pull the tent out of the tent retainer on the front and rear slides of the slideout room. See Fig. 16, page 16.

2. Push slideout room in.

3. Pull slideout tent outside camper, allowing it to hang down on the outside of slideout before pushing bed into camper. When beds are in, replace the slideout tent inside the camper on top of the beds. This procedure is performed to avoid damaging the slideout tent when pushing the beds into the camper.

Miscellaneous

Appliances & Accessories

Although the appliances operate much like the ones in your home, carefully read the operation and maintenance instructions. Specific instruction sheets, manuals, and warranty cards are found in the owner's packet, or are attached to the appliance. Complete the warranty cards, mail them as indicated, and record each unit's model and serial number on the page provided at the end of this manual.

Open flame combustion consumes oxygen from the air. Flame burning LP units each have an outside fresh air supply, except for the range. **DO NOT** use the range to heat your camper. Also, see Special Safety Procedures, page 6.

WARNING: Laws in some states prohibit the operation of any gas appliance while in motion because of the danger of fire or explosion. If an LP gas line under pressure happens to be ruptured in an accident.

Furnace

Starcraft Campers can be equipped with an LP gas furnace which has a remote thermostat. When operating the furnace, make sure that the inlet/exhaust vent is free from obstructions.

A kill switch has been installed under the moveable top of the sink cabinet in all campers. The kill switch ensures that the furnace can't run while in transit. The sink cabinet must be in the setup position for the furnace to run. The switch interrupts the thermostat circuit. Care should be taken in storing articles under this cabinet to insure not disconnecting the wires from the switch.

The thermostat also has an on/off switch at the bottom. Read the manufacturer's instructions thoroughly before operating the furnace.

CONSULT THE MANUFACTURER'S INSTRUCTION SHEETS FOR IMPORTANT SAFETY AND OPERATING INFORMATION ON THE FOLLOWING APPLIANCES:

Water Heater

The fast-recovery gas-fired water heater provides a continuous supply of hot water.

Instructions for lighting and operation of the water heater are located in the water heater compartment which is accessible from the outside of the trailer.

NOTE: New chamber coatings may give off a slight odor the first few hours of use.

Refrigerator

A three-way refrigerator is offered as an option to the standard ice box in tent campers. A refrigerator has three operating modes, LP gas and 110 volt AC, which are primary, and 12 volt DC which is for in transit use only.

LP gas or 110 volt AC should be used to get the refrigerator cold initially and for continuous operation while parked. The 12 volt DC mode is a temporary maintenance mode only and can ONLY be used to keep the refrigerator cold while traveling. In the 12 volt DC mode the refrigerator will run on a battery drawing 10 amps continuously as there is no thermostat in the 12 volt DC mode.

The battery to which the refrigerator is connected must be continuously charged by the tow vehicle. If the power source is an on board battery, the battery must be charged by the tow vehicle alternator. Otherwise, connect the refrigerator to the tow vehicle battery. **NEVER** connect the refrigerator to the converter. **REMEMBER** to switch from 12 volt DC to LP or 110 volt AC when stopped for extended periods, or when at the campground. See, also, *Electrical System*, page 21

More detailed instructions will be found in the manufacturer's owner's manual pertaining to startup, operation and defrosting of the refrigerator.

NOTE: On electrical switches, I = off and O = on.

Several suggestions to reduce the cooling load are:

- 1 Cool the night before departure in LP or 110 volt AC mode.
2. Freeze or precool the items you can.
3. Park your camper in the shade. After each trip, empty and clean the refrigerator (or ice box). Use warm soapy water (dish soap) and wipe dry. Prop the door open when the unit is not in use.

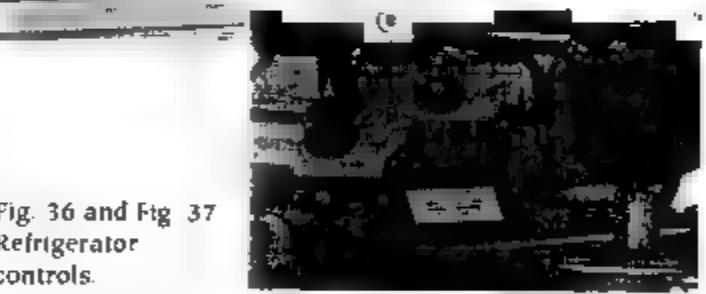
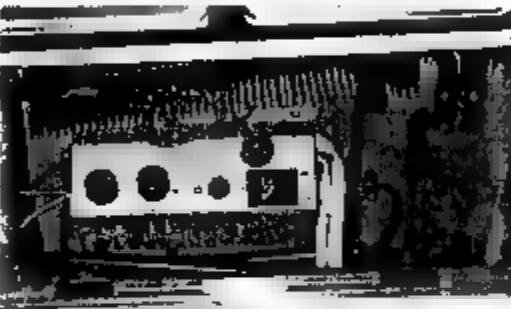


Fig. 36 and Fig. 37
Refrigerator
controls.

Air Conditioner

An optional air conditioner is available to provide comfort cooling during the warm summer months.

All 2005 fold down camper roofs are A/C-ready as standard equipment.

Starcraft RV, Inc. will not be responsible for any damages resulting from the installation of any unapproved air conditioners.

ANY SUCH UNAPPROVED INSTALLATION WILL VOID THE WARRANTY ON THE ROOF AND LIFTER SYSTEM.

NOTE: The total weight, in addition to the standard roof and canvas configuration that can be added to the lifter system is not to exceed 175 LBS for the 3-stage lifter system. These figures are the total combined weight of items such as the air conditioner, A/C prep package, awning, bike rack, boat rack, etc. Any combined weight above these figures will void the lifter warranty.

Fire Safety

Make certain everyone in your party is familiar with the emergency features of your trailer. Location of exits, and location and operation of the fire extinguisher.

Fire Extinguisher Locations

Fire extinguishers are located close to the entrance door of the trailer, mounted on the wall or side of a cabinet. Know where the extinguisher is located and **CHECK IT FREQUENTLY** to assure that it is in good working condition.

If a fire does start, get all people outside. Use the fire extinguisher. If the fire cannot be extinguished quickly, **GET OUT!** Close the LP gas service valve and call the fire department. **DO NOT** re-enter the unit until officials declare it safe.

Replace a used fire extinguisher as soon as possible.

Emergency Exits

Emergency exits are identified by an "EXIT" sticker located on the ceiling or on bunk end panel. See Fig. 38. Make sure that everyone who uses the camper knows where the exits are and is able to operate them in an emergency.

In the unlikely event of an emergency, grab the zipper pull at the lower edge of the tent assembly at the corner lifter post and pull up. This same procedure can be used at all four corner lifter posts.

Prevention is the best form of safety. Follow the same rules you would at home.

Follow the LP gas system instructions carefully and perform the periodic maintenance suggestions.

1. **DO NOT** smoke in bed.
2. **DO NOT** overload electrical circuits.
3. **DO NOT** use matches, candles, or lighters as flashlights.
4. **DO NOT** store flammable liquids inside the camper.
5. **DO NOT** permit children to play with the LP gas or electrical appliances.



Fig. 38 Emergency exit

Cold Weather Use

If the camper is to be used during the winter months, several precautions must be taken:

1. Do not use the stove for comfort heating. Asphyxiation could result.
2. Use a nontoxic antifreeze solution in the water system, or blow the system dry.

3. Do not attempt to raise the roof when the temperature is below 20° F without pre-warming the interior. The vinyl windows or bunk ends may crack.
4. Do not use butane in your LP system. It will not vaporize below 32° F. Propane will continue to vaporize to 44° below zero. Note that heating consumes LP gas rapidly so monitor the supply closely.
5. When cooking, keep the vent and/or window open to prevent condensation buildup and possible asphyxiation.
6. When camping in cold weather, cross ventilation helps slow condensation forming on the canvas.

Storage

NOTE: Open the camper every two months and inspect its general condition.

If instead of using your camper during the winter months you must store it, follow these steps:

1. Clean it out thoroughly. Remove all perishable or usable food and medicine. Wipe the refrigerator out with a damp cloth and baking soda and leave the door propped open. Vacuum the upholstery and remove all the stains. Clean the floor. Remove draperies and clean and store them inside the unit.
2. Shut off the LP gas outlet valve at the tanks.
3. Level the unit for good drainage. Open all the faucets and the drain valve on the water heater. Remove the drain cap to empty the pipes and reinstall the cap. Close all the faucets and drains. Blow out water heater.
4. Pour about 1/2 cup of potable RV antifreeze (or one of the solutions listed below) into the sink and shower drains to prevent freezing. If so equipped, run the 12 volt pump to make certain that it is protected by the antifreeze solution.
 - a) 60% Glycerol, by weight in water, undiluted.
 - b) 22% Magnesium Chloride, by weight in water, undiluted.

WARNING: Automotive, radiator, or windshield washer antifreeze could be fatal if swallowed. **DO NOT** use them in the fresh water system.

5. Squirt graphite lubricant into all door locks and apply lubricant to the door hinges.
6. Whenever possible, block the trailer up, taking the weight off the wheels. Jack and block the trailer at the frame, not the axle beam. Reduce tire pressure to about 14 PSI. Spin the wheels to coat all roller bearings and races with grease. This procedure will prolong tire life, reducing cracking, prevent rust from condensation inside the wheel bearings, and extend torsion axle life by reducing axle settlement during long term storage. **DO NOT** use stabilizer jacks to lift the camper.
7. Complete lubrication of the winch lifter system and cable, as described in the Standard Care section, pages 30 & 31, should be completed before long periods of storage to prevent rust or corrosion from damaging moving parts.
8. Wax trailer with an automobile wax.

9. If the trailer is covered with plastic or canvas, the door and/or roof vent should be opened to provide adequate ventilation so that moisture will evaporate.
10. Sweep snow off the roof as soon as possible. **DO NOT** allow snow to accumulate because the weight, in addition to freezing and thawing, may damage the roof. Damage due to such a condition will not be covered under warranty.

NOTE: If at all possible, we recommend storing the unit inside.

Condensation

Effects of Long Term/Cool Weather Occupancy

Your tent camper was designed primarily for recreational use and short term occupancy. If you expect to live in your camper for extended periods of time, or in cold or cool weather, be prepared to deal with condensation and the humid conditions that may be encountered. The normal activities of even a small number of occupants in the relatively small volume of a modern recreational vehicle, with its thin walls and tight construction, will lead to rapid saturation of the air inside the trailer and the appearance of visible moisture, especially during cold weather.

Estimates indicate that a family of four can vaporize up to three gallons of water daily through breathing, cooking, bathing, and washing. Unless this vapor is carried outside it will condense on the inside of the tent sides or bunkend ceiling as moisture. In cold weather, it will appear as frost or ice. It may also condense in the walls or the ceiling and appear as stains on the paneling. Condensation is a function of nature and is not a warranty matter.

Controlling Condensation

Interior condensation can be reduced (during cold weather) with the following steps:

1. Ventilate with outside air. Partially open a roof vent and windows to provide controlled circulation of outside air to the inside of the trailer. This will increase the heating load on the furnace somewhat, but it will greatly reduce condensation. You should increase ventilation when large numbers of people are present.

NOTE: Even when it is raining or snowing, outside air is much drier than interior air and will effectively reduce condensation.

2. Install a dehumidifier. The use of a dehumidifier will reduce the need for outside ventilation. As a result, the heating load on the furnace will be reduced.

Warranty Repairs

Your new unit is the result of Starcraft's dedication to provide a product that will assure years of camping enjoyment. This dedication is extended through the design, engineering, and manufacturing as well as customer service and repairs. Should a problem develop with your new Starcraft as a result of workmanship or materials, we want it corrected and back in service just as much and just as quickly as you do.

The first place to seek correction of a warranty problem is always at the dealership where you bought the trailer. There is a network of dealers across the United States and Canada who are authorized to perform warranty repair work.

For prompt, efficient service, please use your Owner Protection Service Identification Card at the Starcraft servicing dealer or facility where the repairs are being made.

Keeping the respect and satisfaction of our customers is most important at Starcraft.

We are proud of the quality of our dealers and they can handle just about any problem that might come up with your unit. If you find, after going to the dealer, that you do not receive satisfaction, you may write:

Starcraft RV Warranty Services
P.O. Box 458
Topeka, IN 46571

Service & Service Chart

The operations listed in the Service Chart should be performed on a regular basis. If you are not prepared or equipped to handle these steps, please have them performed by your Starcraft Dealer or other qualified service technician.

SERVICE INTERVAL:

Each	500 Tr p/ Miles.	1,000 Miles.	2,500 Miles.	3,000 Miles/ 30 day	5,000 Miles/ 3 months	10,000 Miles/ 6 months	Yearly
------	------------------------	-----------------	-----------------	---------------------------	-----------------------------	------------------------------	--------

Service To Be Performed							
Pack wheel bearings.....							X
Check brake operation.....		X					
Adjust brakes.....					X		
Service brakes							X
Inspect safety chains.....		X					
Inspect wiring		X					
Check tire inflation & wear.....		X					
Inspect hitch components.....		X					
Lubricate coupler latch & socket.....				X			
Lubricate hinges.....							X
Lubricate locks							X
Inspect and clean vents.....							X
Check lug nut torque.....			X				
Sanitize fresh water system.....					X		
Clean drapes and interior fabric.....							X
Inspect exterior seams and openings*					X		
Reseal exterior seams and openings*							X
Clean battery cables/terminals.....						X	
Check battery fluid levels.....					X		
Inspect suspension							X
Tank discharge filter					X		
Check, clean and lubricate winch (see Standard Care).....							X
Grease master tub on lift system.....							X

*The seal along the edges of the roof and at the corners of the trailer should be checked every 60 days

Check the roof for damage (such as punctures from falling objects) frequently. Damage to the roof can result in leaks and subsequent damage to interior parts of the trailer.

Standard Care

COMPONENT	STANDARD CARE	AVOID
Appliances	Clean with hot soapy water	Abrasives.
Countertops	Clean with hot, soapy water	
Sink	Use appropriate cleaners.	
Stove	Use appropriate cleaners, and coat with film or vegetable oil after cleaning.	When hot
Refrigerator	Remove food after each trip	Abrasives
Upholstery Fabric		
Fabric	Foam type cleaners or hand wash with warm soapy water	Dry cleaning.
Vinyl	Vinyl cleaner	Dry cleaning.
Drapes	Drapes must be hand washed using a mild detergent and dripped dry	Dry cleaning & machine washing.
Vinyl Floor Covering	Use detergent soap and water, rinse well, and follow with a clear paste wax or equivalent to obtain best results.	Abrasive cleaners
Woodwork		
Pre-finished	Use household furniture wax or polish. Cover scuff and scratches with a wax and stain mixture or matching putty stick	Use of water harsh cleansers, alcohol or petroleum base solvents.
Stained	Sand and re-stain as required.	
Bed Slides	Periodic lubrication with a silicone lubricant will enhance the ease of operation and prolong track life	Getting excess lubricant on surrounding canvas and upholstery as it could produce stains.
MAINTENANCE		
Frame, Running Gear	Check at least every 1000 miles (or twice a season). Rinse with water after salt or chemical contamination, repaint as necessary	Road chemicals.
Tires	Inflation (see page 2)	Over or under inflation. Either may cause problems.
Rims & Hubs	Clean and repaint as needed.	Road damage
Wheel Lug Nuts	Check torque the first 2500 and 500 miles and every 500 miles thereafter	See Dexter Axle Manual for cautions.
Wheel Bearings	Lubrication. Obtain new cotter pins and repack with high temperature wheel bearing grease per Service Interval Chart	
Brakes	Check linings or adjust if needed. (See Service Interval Chart)	
Dolly Wheel Jack	Coat threads lightly with axle grease. Lube with WD 40	
Coupler	Wheel bearing grease on the release lever and socket.	
Ball	Wheel bearing grease or soap	
LP Gas	Check all lines for crimps or damage. Check for leaks with soapy water. Pressure regulator line pressure is 11 inches of water column. Paint LP bottles white as necessary	Overfilling bottles, refilling with engine running or near flame.
Water	Check all hoses, fittings and connections for signs of leakage	Allowing water to stand in tank after a trip. Too much pressure. Hooking up to an unfamiliar city water connection without first checking whether a pressure reducing coupler is required. It must not be over 60 PSI
Tank Discharge Filter	Checked and cleaned. Sanitize water system when needed. (See page 11)	

COMPONENT	STANDARD CARE	AVOID
110 Volt AC	Examine wires and ground	
Auxiliary Battery	Check liquid level twice a month. Keep charged. Keep terminals clean. Do not connect battery from converter for long term storage	Overfilling or low liquid level below plates.
Fire Extinguisher	Be sure it is charged. Check pressure monthly and note or inspect on tag	Not replacing after use
Pigtails or Connector	Check wires and insulation	Corrosion
Aluminum Fiber-glass & ABS Plastic	Use warm soapy water (mild detergent) and a soft bristled brush. Wax with a nonabrasive liquid or paste wax	Abrasives. Washing or waxing in hot sun
Locks	Lubricate with graphite	
Roof & Seams	Inspect at least every 60 days. Check for gaps and re-caulk using a #999A Dow silicone sealer (available from Starcraft) or another brand of pure 100% s. cone caulk. A similar procedure should be followed for the roof vent and screws. This procedure must be done at least once a year or sooner if necessary	
Extrusions	All should be waxed with a good nonabrasive liquid or paste wax to help preserve the finish and avoid pitting	
Starcraft Lifter System	Inspect cable for fraying. Inspect spring tubes and spring tube connections at master tube and lifters for damage. Grease master tube annually. Two grease zorks are provided on the master tube. One good pump of grease should be sufficient. Check lifters for damage, scoring and freedom of movement. Lubricate with spray silicone	Oil, grease or graphite on lifters or cables
Winch	Bow clean with high pressure air. Apply a few drops of light machine oil on the cable drive shaft bolt and the brake shaft bolt. Also apply a few drops of oil on the pawl pivot shaft to prevent seizure (not clicking when raising roof)	Heavy oil or grease on exposed gears and threaded shaft. Avoid any spray lubricant on brake mechanisms.
A/C Conditioner	Clean evaporator and condenser coils later and part. Cover outside of condenser when not in use	Low voltage.
Tent Assembly	See cleaning instructions (page 33)	

RT Series

The RT Series is of the same quality as the regular Starcraft lineup. The exception is a much heavier frame and running gear. The 10RT is a familiar floorplan on the heavier chassis. The 11RT is a new floorplan with a much longer frame. This longer frame allows for a 52" x 61" exterior cargo platform on the front of the trailer. This platform is complete with moveable gates and a diamond plate aluminum deck with tie down brackets for use with many different types of cargo. This deck should not be loaded to exceed 700 lbs. hitch weight.



Fig. 45A & 45B
Photos showing front gate on 11RT in locked and unlocked position. Also, cargo tie-downs are visible in the deck plate.



CRAFTED TO EXCEED YOUR EXPECTATIONS.™

IMPORTANT INFORMATION

TENT FABRIC CARE AND MAINTENANCE

PRE-CONDITIONING:

It is important to precondition your canvas before your first camping trip by using the following steps:

- 1 Set-up camper making sure all windows are zipped closed and all vents and doors are closed
- 2 Using a spray, rather than a stream, from your garden hose thoroughly wet entire canvas and allow to dry
- 3 After drying spray again and check for any leaks to the interior of the camper.
- 4 Any stubborn leaks may be sealed using 3M Scotch Guard Protector for fabric in aerosol spray following directions on the container
- 5 Complete application is recommended to further resist any staining that may occur as well as provide complete water repellency
6. Allow to completely dry before closing down unit.

CLEANING

Suggested cleaning procedure for all Tent Fabrics are as follows

- 1 Use clean tap water with mild detergent and soft bristle brush, then rinse thoroughly to remove all soap residue
DO NOT USE HARSH DETERGENTS, SOAPS OR SOLVENTS SINCE THEY MAY REMOVE WATER REPELLENCY.
DO NOT USE AEROSOL TYPE CLEANERS.
DO NOT USE INSECT REPELLENT AROUND FABRICS SINCE AN AGENT USED IN MOST WILL DAMAGE OR DESTROY WATER REPELLENT FINISHES.
- 2 Check interior for any leakage after rinse and allow to thoroughly air dry
3. Upon completion of each cleaning it may again be necessary to apply 3M Scotch Guard Protector for fabric, to assure water repellency if cleaning process has removed it.

TO HELP EXTEND THE LIFE AND APPEARANCE OF YOUR TENT

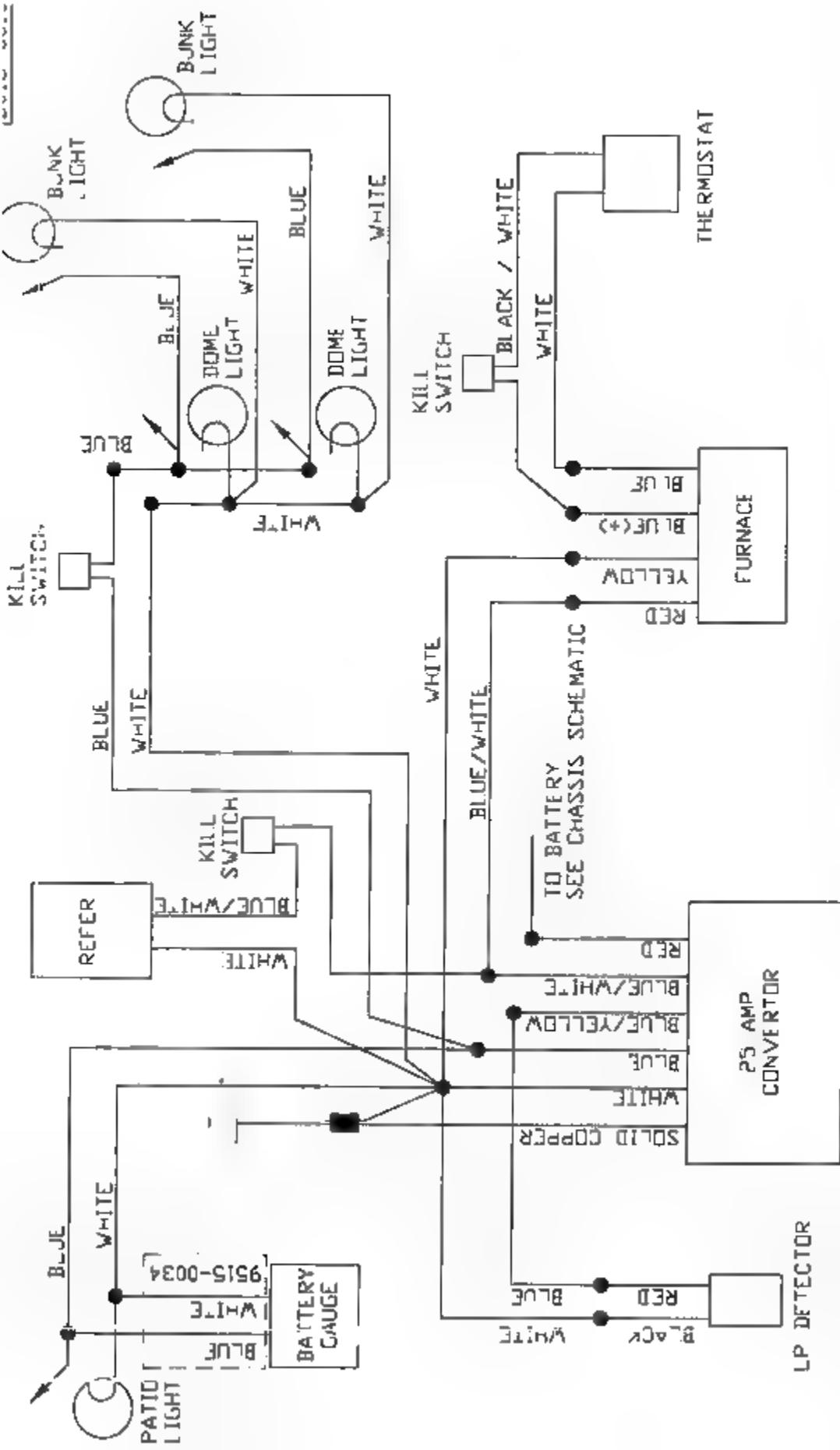
1. **DO** thoroughly clean whenever bird droppings, tree sap or dirt becomes apparent
2. **DO** apply Scotch Guard Fabric Protector any time accidental contact with Insect Repellent, Hair Spray or Suntan Lotion occurs.
3. **DO NOT** fold down unit wet for any extended period of time. If canvas must be stored wet, open unit to thoroughly dry as soon as possible
4. **DO NOT** allow the sun to dry moisture (rain or dew) into vinyl. Moisture combined with dust and dirt will result in stains which will be almost impossible to remove.

Serial Number Identification Form

The following information will be necessary if one of your appliances requires warranty service
Fill in the available information as soon as possible.

Option Weights

OPTION	WEIGHT	OPTION	WEIGHT
Tires.		Battery Gauge.....	2 LBS
5.30 x 12(c)	20 LBS	Suburban Furnace	19 LBS
ST175 x 80D 13C.....	30 LBS	Refrigerator:	
Vinyl Tire Cover.....	0.7 LB	3-way (Dometic RM 2193).....	32 LBS
Vinyl Bottle Cover: Single	1.4 LB	3-way (Dometic RM 4223 - Slideouts).....	54.5 LBS
Double.....	2 LBS	Air Conditioner Prep Kit.....	25 LBS
Bicycle Carrier	23 LBS	Water Heater w/Faucet & Pump.....	23.2 LBS
Boat Rack.....	11 LBS	Electric Brakes	9 LBS
Self-Storing Awning, 7'	24 LBS	Outside 110 Volt Recept	1 LB
9'	27 LBS	Step	29.8 LBS
11'	29 LBS	Clothes Bar	1 LB
Screen Room: 7'	19.7 LBS	Outside Shower	5 LBS
9	20.6 LBS	Outside Access Door	1.5 LBS
11	22.9 LBS	Convenience Package56 LBS
Bunk Light.....	1.5 LBS	Deluxe Package12 LBS
Double LP Bottles w/Auto Regulator.....	19 LBS	Space Station	4.7 LBS

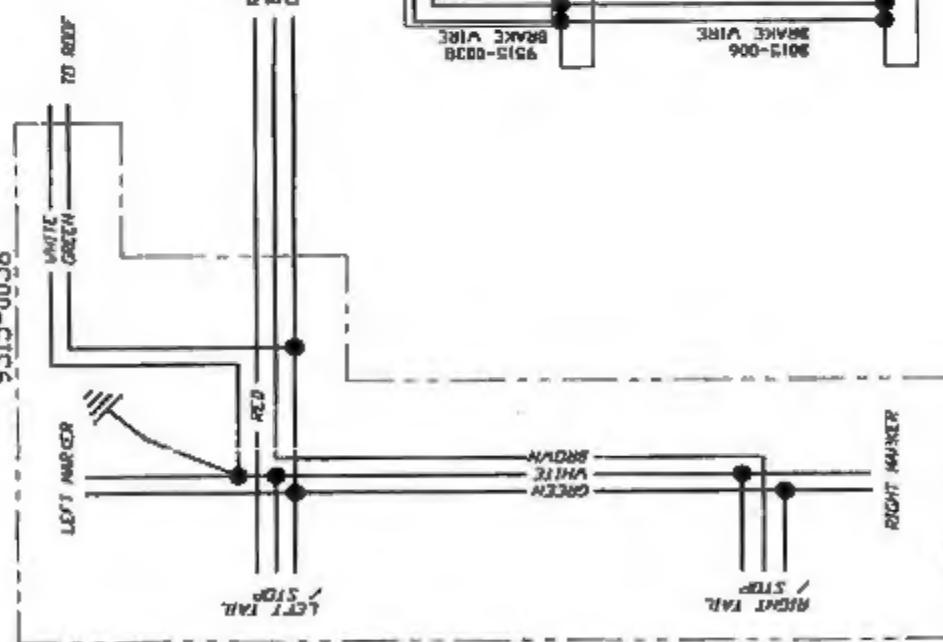
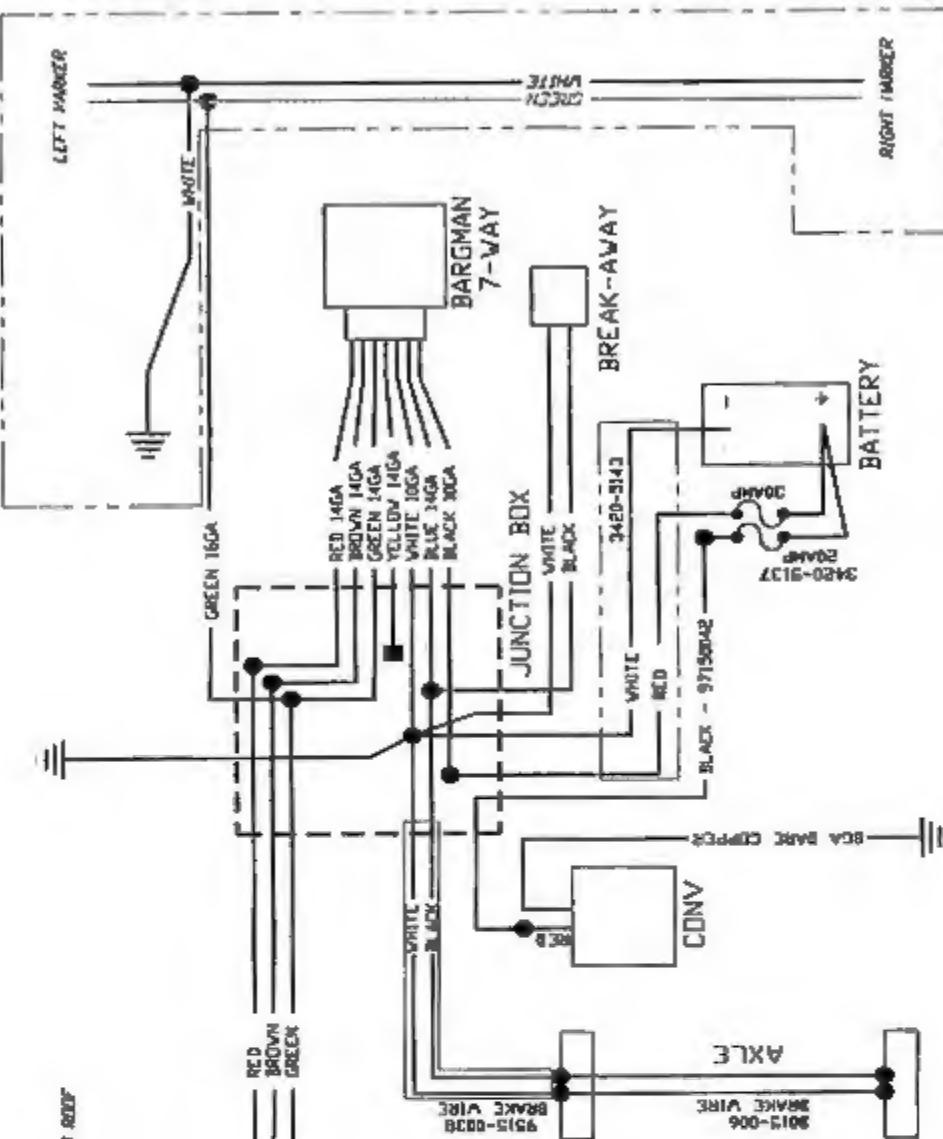


SYMBOLS / DESCRIPTION

4	CHANGES	BY	DATE	DCN #	DO NOT SCALE DRAWING	STARCRAFT 12V
A	RELEASE	DB	2003HY	2/14/02	SEE 3/4" - (B2)	
B	UPDATED COLORS	DB	2003HY	03/18/02	NOTED	
						STARCRAFT TENTS
						DO 015-0010
						1

REVISED 03-18-02 14:16

D015-0011

REAR HARNESS
9515-0058FRONT HARNESS
C015-0015

Symbols/Descriptions

- Connection
- Ground
- Line

CHANGES BY DATE ECN # DO NOT SCALE DRAWING
A RELEASED DB 02/14/02 2003MY 3/4"=1" (B2)

NOTED

Rev. B

STARCRAFT TENTS

Rev. B DB 02/14/02

NOTED

Rev. B DB 02/14/02

SCHEMATIC,
CHASSIS

D015-0011 of 1

REVISED 02-14-02

Centennial Entrance Door Set-up

After unhooking and leveling camper, crank the roof up and set the stabilizer jacks. Install all the bed braces and pull both beds out. Set up the bunkends and zipper the tent panels closed at each lifter.

Unlatch the two wing catches on the off door side of the trailer that are holding the entrance door to the ceiling. Let the door hang on the cables. On the door side of the trailer, you will need to lift the entrance door slightly to unhook it from the storage bracket. Move the door toward the off door side of the trailer slightly to allow downward movement of the door.

Lower the door assembly while pushing the entire door outside of the camper. The top of the door will remain inside the camper. Lift the door vertically while fitting the top of the door under the roof sideboard. Turn the two wing catches located on the roof sideboard to hold the top of the door securely. Open the door and pull inward on the sides of the door frame until it is seated in the door jambs. Turn the four wing catches on the door frame to secure it to the jambs. Fasten the tent panel Velcro to the entrance door Velcro.

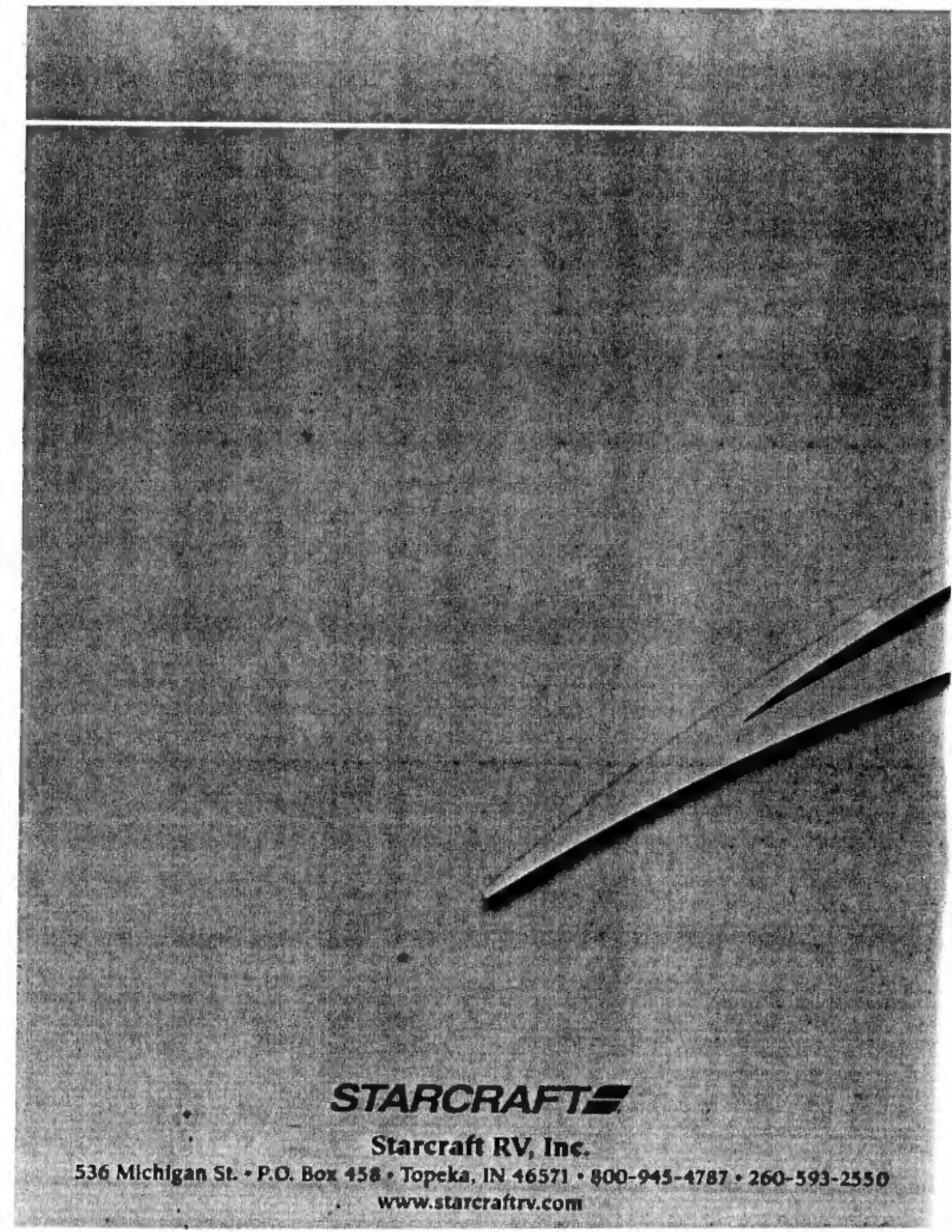
To store door for travel, reverse this procedure.

Centennial Sink Faucet Storage

Before closing the camping trailer down, it is important that the sink faucet be lowered to allow the beds to be pushed in. Otherwise, serious damage to the faucet spout will occur.

Turn the sink faucet spout toward the sink. Grabbing the "U" shaped handle in the moveable countertop with one hand, lift slightly while turning the thumb lock with the other hand. Release the hold on the "U" shaped handle and the countertop with faucet will gently lower into the cavity behind the sink.

The faucet spout should be turned into the sink before trying to push the beds in. If not, lift the moveable countertop by the "U" shaped handle high enough to turn the spout the correct direction.



STARCRAFT

Starcraft RV, Inc.

536 Michigan St. • P.O. Box 438 • Topeka, IN 46571 • 800-945-4787 • 260-593-2550

www.starcraftrv.com